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USSR Report

ENERGY

No. 70

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ELECTRIC POWER

OVERALL DEVELOPMENT OF POWER INDUSTRY REQUIRED

Moscow GUDOK in Russian No 122, 27 May 81 p 3

[Article by L. Kaybysheva: "Economics and Power Engineering"]

> [Text] From five-year plan to five-year plan, the power potential of our country's economy grows. Due to the systematic realization of Lenin's ideas regarding electrification and the rapid development of the fuel industries, Soviet power engineering has gone on to occupy a leading position in a short period of time. The world's largest hydroelectric power stations outfitted with advanced domestic equipment are operating in the USSR. The capacities of atomic power stations are growing at a rapid pace. Our expenditure of fuel for the generation of a single kilowatt-hour of electric power is less than in many developed countries. The USSR surpasses the Western States with respect to the scale of central heating. The interests of future economic and social progress and the creation of a material-technical base for communism, however, demand that a new, powerful increase in power production be insured.

The consumption of electric power is growing rapidly. At the present time, for example, electric power is being consumed for the needs of such leading sectors of industry as machine construction, ferrous and nonferrous metallurgy and the chemical industry at a rate of 1.5 to 1.8 times higher than all the USSR's industry consumed in 1950. The use of electric power in agriculture has increased by a factor of five over the last 15 years, while its use for domestic needs has almost doubled. A fact such as the following, for example, says something about the scale of electrification of our country: when an interesting television program comes on, it is necessary to switch in momentarily more than 4 million kW of additional electric power--the power of the Bratsk GES! A great consumer of electric power is rail transport. Without electrification, a further increase in the lines' capacity and the introduction of modern engines is unthinkable.

The 26th CPSU Congress set a task to bring the production of electric power in 1985 up to 1,550 to 1,600 billion kWh. This includes an increase of up to 220-225 billion kWh at atomic power stations and up to 230-235 billion kWh at hydroelectric stations. How, then, is the problem of electric-power generation to be solved in the most efficient and economical manner?

Atomic power production is being developed for the most part in the European sector of the USSR. Here atomic power stations will provide for almost the entire increase in output. This can be explained by the fact that about 80 percent of our country's fuel and power resources are located in the east, in the Ural range. Nuclear fuel is compact, has a high power content and is easily transported over any distance. As practice has shown, nuclear-fueled stations sometimes produce energy cheaper than solid-fuel stations. Moreover, they are ecologically cleaner.

In the 11th Five-Year Plan, 24 to 25 million kW of new capacity must be commissioned at AES's. This is more than has been commissioned over the last quarter century. The Kalininskaya, Zaporozhskaya, Khmel'nitskaya, Rostovskaya, Balakovskaya and other AES's will be the first to provide current. In a number of cities, provisions have been made for the construction of district-heating atomic power stations. In order to carry out this large-scale program, the power-plant builders are making the transition to a continuous-construction scheme for AES's, using standardized designs. At each such AES with an output of 4 to 6 million kW will be installed reactors with a unit capacity of one to one and a half million kW.

The next important, progressive trend is the further employment of hydraulic resources in the country's power balance. The particular significance of hydroelectric stations lies not only in the fact that they are sources of power, but also in their high degree of controllability. As is well known, the demand for electricity varies sharply over the course of a day. The large power-generating untis of thermal and atomic stations are employed economically in a steady, base mode. Hydraulic units, however, are simple to stop and start up as the situation warrants. They usually operate during peak load hours and are idled during the nighttime lows.

During the current five-year plan, construction will be completed on the 6.4 million kW Sayano-Shushenskaya GES as well as on such large-scale stations as the Nizhnekamskaya, Kolymskaya and Cheboksarskaya. When the last of these becomes operational, the utilization of the Volga's hydroelectric resources will be complete. In Tyan'-Shan, construction will continue on the Kurpsayskaya GES, the next stage in the Naryn cascade. The Boguchanskaya GES will be built on the Angara.

Seeing as the hydraulic reserves of the large rivers in the European sector have been practically exhausted, plans are being made to utilize the power of small rivers here. Hydroaccumulating stations (GAES's) will be built for the most part. They store up water at night and generate electric power by day.

The hydroelectric stations of Siberia are becoming the basis for large-scale territorial production complexes with power-intensive industries. The hydroelectric stations of Central Asia and the Far East are also multipurpose. Problems of irrigation, navigation and frequently even fishing are being solved with the aid of hydrosystems. The joint utilization of power resources and raw materials in the eighties will be given particularly great significance.

One of the most important tasks of the 11th Five-Year Plan is the accelerated development of work on the creation of the world's largest fuel and power complexes based on the Ekibastuz and Kansko-Achinsk coal as well as on natural and casinghead gas from deposits in western Siberia. These complexes will have great significance for the entire economy, for the development of the productive forces of

Siberia and Kazakhstan and for supplying electric power to the country's central regions. Construction has already begun on powerful thermal electric power stations. For example, three power-generating units of 500,000-kW capacity each have been commissioned at the Ekibastuz GRES-1. Two more will enter operation in the current year. They are specially designed to operate on high-ash, low-calorie coal, At the Berezovskaya GRES-1, the construction of which has begun in the Kansko-Achinsk basin, units of 800,000-kW capacity each will be installed. The development of western Siberian gas began with the construction of the Surgutskaya GRES. The total designed output of these three fuel and power complexes will amount to about 100 million kW.

District heating occupies a special place in the country's fuel and power balance. Thanks to the combined generation of electric and thermal power, the TETs conserves 25 percent of the fuel. These stations now supply about a third of the country's needs for electric power and about 40 percent of its heating needs, providing heat to 800 cities. During the current five-year plan, construction will continue on new TETs's and other operational stations will be improved. In 1981 the first power unit of the new TETs in Moscow--the South Station--will also begin. Work on the expansion and modernization of the Moscow TETs's will basically be completed by 1990. Their total electrical output will then exceed 11 million kW.

At the November 1979 plenum of the CPSU Central Committee, L. I. Brezhnev said that we must also be concerned about power engineering in the future. Such directions are the work being done on mastering fast reactors, the utilization of the principle of nuclear fusion and the creation of solar, geothermal and wind-power electric stations.

When talking about the development of power engineering in the 11th Five-Year Plan, one must also speak of such urgent sectors as the construction of supercooled electric transmission lines. Remember how the LEP-500 lines praised in song began their service at the beginning of the 1960's and were justly considered an achievement of technical progress. They are now being replaced by the LEP-750's. Superhigh-voltage electric transmission lines will occupy first place in the near future. First of all is the 2,400-km, 1,500-kV Ekibastuz-Center direct-current line. In the future it will transmit up to 42 billion kWh of electric power annually to our country's European sector. The very large-scale 1,150-kV Ekibastuz-Urals electric transmission line remains to be built.

Work will continue on the further development of the country's Unified Power System and on the improvement of the reliability and quality of the power supply to the economy.

We are justly proud of the achievements of our domestic power industry. The acceleration of the pace of our country's electrification during the 11th Five-Year Plan will be one of the major factors in the increase in the efficiency of production and the improvement of the quality of life for millions of Soviet people.

9512
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ELECTRIC POWER

CONSTRUCTION BEGINS ON EXPERIMENTAL SOLAR STATION

Moscow GUDOK in Russian 7 Jul 81 p 4

[Article by N. Nesvitenko: "Electric-Power Stations Without Turbines"]

[Text] In Crimea, near the village of Lenino on the shores of the Sea of Azov, construction has begun on a 5,000 kW experimental solar-power station, the first in our country. Here the energy of the sun will be converted to electric power in the following sequence: initially, the solar beam will be used to heat water to 300° C; then, like at an ordinary thermal electric power station, the energy will be transformed with the help of a generator-turbine.

We are also conducting work on building electric-power stations at which solar power will be transformed directly into electricity through the use of thin-film photoelectric cells. Studies on building such cells are being conducted at the Khar'kov Polytechnical Institute imeni Lenin, which is coordinating scientific research in this area at 13 other institutes of higher learning in our country.

They showed me a 10x15-mm metal plate on which a very thin layer of semiconductor had been deposited.

"This is the basis for future photoelectric converters of solar power to electric power," said Professor B. Boyko, project supervisor and doctor of physic-mathematical sciences. "For the construction of large-scale FESS's--photoelectric solar stations--a large number of thin-film cells will be required. At the present time, however, their manufacture is expensive. Our task, then, is to reduce their production cost at least by a factor of 10."

The Khar'kov physicists believe that it is theoretically possible to create an integrated cell for the photoelectric solar station based upon a multilayered film composition. It would contain a converter for solar radiation, an electrical storage unit and a system for the autonomous, programmed self-control of its operation. These physicists are conducting fruitful work on solving one of the fundamental problems--the creation of a highly efficient, reliable and inexpensive photoelectric converter.

"Photoelectric solar stations can be built practically anywhere, not only in regions where there is a high level of direct and solar radiation," Professor Boyko told me. "Due to the modular nature and unitized construction of the converters, FESS's can have varying outputs and different functions, depending upon the number of converters. There can be microstations of one to several watts output to provide electric power to a radio transmitter, air or maritime navigational beacons and for powering pumps in small installations. There can also be FESS's of several million kW capacity for supplying electric power to population centers and industrial enterprises in remote regions."

FESS's will not have equipment common to a thermal power station and will operate without service personnel. If any of the cells of the solar-to-electric power thin-film converters should fail, the electronic control system would make the fact known.

"Our scientists have set the task of creating highly efficient, reliable and inexpensive photoelectric solar converters by the end of the current five-year plan," said Professor N. Kirkach, head of the institute and doctor of technical sciences. "The creation of photoelectric solar stations is a concrete realization of our program of economic and social development of the country in 1981-1985 and for the period to 1990, a program which calls for an increase in the scale of utilization of solar and other renewable power sources in the national economy."

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ELECTRIC POWER

LENINGRAD AES BEGINS OPERATION

Moscow PRAVDA in Russian 30 Jun 81 p 2

[Article by PRAVDA correspondent V. Gerasimov: "Current From the Leningrad Atomic Power Station"]

> [Text] The eighth and last turbine unit of the Leningrad Atomic Electric Power Station imeni V. I. Lenin has begun providing commercial current to the northwest's power system. Construction of the station has been concluded.

Surpassing the construction plan had become a hard and fast rule at the atomic station. Progressive methods of operational organization and advanced production methods for installing structural members and equipment as well as the rich experience in socialist competition acquired by the collectives will now be well suited for the construction of other similar atomic stations. The Leningrad AES leads the way.

"Participation in the station's construction has become for everyone a good school for teaching management, an interested attitude toward work and a thoughtful means of investigating reserves," said L. Perekrestov, first secretary of the Sosnovyy Bor CPSU gorkom. "I will mention one particular feature of our construction project, and that is the erection of a new modern city simultaneously with the building of the station. In such a manner, the problems of economic development have been solved in association with social tasks. This has helped matters greatly."

A close relationship between the builders and operators was established from the very beginning. Challenging problems here were solved jointly, within the framework of the agreeement regarding competition and creative cooperation.

Specialists from various professions also worked very well side by side in preparation for the start-up of the last unit--senior machinist G. Solonov, deputy chief station engineer M. Umanets, the electricians' brigade of M. Serebryakov, shift chief A. Cheremisin and senior reactor shop operator A. Suslyayev. Taking the shock-work baton from the builders, the AES collective is keeping up a good pace--since the moment the station was put into operation, the output of electric power has been 4.5 billion kWh more than planned. Since the Leningrad AES began producing its designed output (and this was also achieved ahead of time, by the Great October holiday), the station's capacity has attained 4 million kW.

As is well known, the "Basic Directions for the Economic and Social Development of the USSR for 1981-1985 and the Period to 1990" call for 24-25 million kW of new output to be put into operation at atomic power stations during the current five-year plan. Of particular significance is the construction of atomic power stations in the European sector of the USSR, when, to a considerable extent, reserves of the usual fuels--coal, gas, fuel oil--have been uncovered. The completion of construction at the Leningrad AES is a huge contribution to the solution of tasks relating to the development of atomic power engineering, tasks which were set at the 26th CPSU Congress.

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BRIEFS

COMPUTERS AT BRATSK GES--Bratsk, 6 Jul--The collective of the Bratsk GES has provided since the beginning of the year 100 million kWh of electric power over the plan. The Siberian workers have been purposefully improving the power units, increasing their productivity and reliability. All the generators have been renovated, thanks to which the output of the GES rose from 4.1 to 4.5 million kW. A remote-control complex of three computers has been put into operation. They are ready at any moment to neutralize imminent emergency situations, having made the necessary change-overs in the power system. With the help of specialists from Uralelektrotyazhmash and the Leningrad Elektrosila association, the generator excitation system is being rebuilt. [Text] [Moscow PRAVDA in Russian 7 Jul 81 p 1] 9512

NEW ELECTRIC TRANSMISSION LINE--Semipalatinsk, [illegible]ul--In the steppes of Semipalatinskaya Oblast a 220-kV electric transmission line has begun operation. The 140-km electric-power bridge connects the Shul'binskaya GES being constructed on the Irtysh with the city of Zhangistobe. The new electric transmission line will help to accelerate the construction of the hydroelectric station. [Text] [Moscow PRAVDA in Russian 5 Jul 81 p 1] 9512

CONSTRUCTION OF 500-kV TRANSMISSION LINE--Abakan, 10 Jul--The laying of a new 500-kV electric transmission line across the steppes of Khakasiya and the mountain chains of Kuznetskiy Alatau has been completed. This line will convey the power of the Sayano-Shushenskaya GES to enterprises of the Kuzbass and to the KATEK construction sites. The 270-km power bridge is being built at an accelerated pace by collectives of four mechanized columns from the Elektroset'stroy trust in Krasnoyarsk. The electric line has already been tested at its working voltage. Its terminal point is the Itatskaya electric-power substation on the Trans-Siberian line. It will operate at levels exceeding one million volts. [Text] [Moscow PRAVDA in Russian 11 Jul 81 p 1] 9512

DNESTROVSKAYA GES TURBINES--Khar'kov, 27 May--A rotating-vane turbine of considerably reduced weight has been built by specialists from the Khar'kov plant imeni Kirov. Today the last assemblies of a pilot generating set with an output of 119,000 kW was sent to the Dnestrovskaya GES, now under construction. The enterprise will produce six such machines for this station. [Text] [Moscow KRASNAYA ZVEZDA in Russian 28 May 81 p 1] 9512

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ENERGY CONSERVATION

AZERBAIJAN CONTRIBUTION TO SOLVING FUEL, ENERGY PROBLEM

Baku VYSHKA in Russian 7 Jul 81 p 2

/Article by Candidate of Technical Sciences P. Kutyumov: "Fuel and Energy: Problems, Prospects"/

/Text/ As is known, in the Main Directions of USSR Economic and Social Development for 1981-1985 and the Period to 1990 it is recognized as necessary not to speed up the increase of petroleum production during the 11th Five-Year Plan, but to set its volume at the level of 620-645 million tons. This, of course, does not mean that our growing national economy will experience a shortage of energy resources. Three important measures for solving the fuel and energy problem are called for in the Main Directions.

First, it is planned to boost the production of gas and to increase it to 600-640 billion m^3. Thus, as compared with the 10th Five-Year Plan the increase of the production of gas primarily at Western Siberian deposits will be about 200 billion m^3. The production of fuel in Western Siberia and its transportation to the European part of the country, it was stated at the 26th party congress, have to be made the most important links of the energy program of the 11th and 12th Five-Year Plans.

Second, a saving in the amount of 160-170 million tons of convention fuel by its more efficient and careful consumption is envisaged. Moreover, half of this amount should be saved by the reduction of the rates of consumption per unit of output being produced.

Third, the policy has been adopted to replace furnace fuel oil with gas and with hard coal, the production of which it is envisaged to increase to 770-800 million tons during the 11th Five-Year Plan. Incidentally, the predicted reserves of coal in our country greatly exceed the reserves of petroleum and natural gas. On this basis, the need for the elaboration and implementation of methods for the purpose of obtaining liquid synthetic fuels is mentioned in the Main Directions. Soviet scientists have already developed a system of the conversion of solid fuel. This power technology system makes it possible to use coal and heavy liquid hydrocarbons both as a source for obtaining thermal energy and electric power and as a source for obtaining synthetic motor fuel: gasoline, kerosene and so on.

Such a direction in the elaboration of the new structure of the fuel and energy balance in the country will also guarantee the uninterrupted supply of the national economy with energy in the future. The need for the expansion of the adoption of new methods of influencing petroleum beds and for the increase by means of this of the extraction of petroleum from the ground is also indicated in the Main Directions. This is of especially great importance for the Azerbaijan SSR. Relatively recently the Azerbaijan petroleum industry marked as a holiday the production of the 1 billionth ton of petroleum since the start of the working of the petroleum deposits of Azerbaijan. However, science has proven that there are still significant reserves of petroleum in the ground of Apsheron. But new methods of influencing the petroleum beds are needed in order to extract this remaining petroleum from the ground.

Extensive possibilities still exist in the republic for increasing the production of petroleum and gas. It must be borne in mind that the cost of recovering petroleum today is also still increasing because a large portion of the discovered reserves of petroleum in Siberia requires considerable outlays on recovery and transportation. Therefore the expenditures on tertiary recovery methods, which include the organization of the production of certain chemical reagents or others and the drilling of additional boreholes for their injection into the beds, in our opinion, will not exceed the total expenditures which are connected with the refining of Siberian petroleum in Azerbaijan. Moreover, this means will make it possible to provide adequate reserves of petroleum and gas in the republic for the stabilization of production, which is called for by the decisions of the 26th CPSU Congress.

It must be said that in the national economy of the country thermal electric power stations, which run on furnace fuel oil, were and remain today the basis of the power potential of the country. These stations provide more than three-fourths of all the electric power, and of them more than half use liquid and gaseous fuel. To replace furnace fuel oil by hard coal--such is the task which has been set for the current and next five-year plans. But this problem cannot be solved simply. Furnace fuel oil can be released relatively simply by changing over to the combustion of natural gas, no significant amount of work on the remodeling of electric power stations is required.

The changeover of thermal electric power stations, which have been built to burn only liquid or gaseous fuel, to the combustion of solid fuel is a difficult, expensive and protracted matter. Therefore a means was selected so that during the 11th Five-Year Plan thermal electric power stations would be remodeled to run on solid fuel with their simultaneous operation on natural gas instead of furnace fuel oil. Hence it is obvious what importance the increase of the production of natural gas during the 11th Five-Year Plan is acquiring for the national economy.

The thermal electric power stations of the Azerbaijan SSR will apparently operate for a long time yet on natural gas and furnace fuel oil. It is hardly advisable to remodel our stations to run on solid fuel, which it is very difficult to deliver to the republic. However, the burning of furnace fuel oil, which is obtained from sulfurous petroleum, will create serious problems which are connected with the pollution of the biosphere. Such furnace fuel oil contains a large amount of organic sulfur compounds which when burned, being dispersed along with flue gases in the atmosphere, do much harm to vegetation and living organisms.

In my opinion, at the thermal electric power stations of Azerbaijan it is necessary to adopt a system of the two-stage combustion of sulfurous fuel oil. Such a system, which was developed by Soviet scientists, makes it possible to use it efficiently and eliminates environmental pollution and the corrosion of equipment at the thermal electric power stations.

"Life requires," Comrade L. I. Brezhnev said at the 26th party congress, "the continuation of the search for fundamentally new sources of energy, including the development of the principles of thermonuclear power engineering." Nuclear power engineering will continuously be developed in our country. But scientists will require approximately 30 years for the structure of power engineering to be changed over to new types of energy. And during this time our country, without decreasing the growth rate of energy consumption, will be provided with traditional types of energy resources--petroleum, gas and coal, the predicted reserves of which in our country are also sufficient for a longer period.

The program drawn up by the 26th CPSU Congress of gradually changing the fuel and energy structure with allowance made for the utmost thrift and the economical consumption of petroleum, gas, coal and other types of fuel will provide our entire national economy completely with energy resources both during the 11th and 12th Five-Year Plans and in the more distant future.

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ENERGY CONSERVATION

BELORUSSIAN POWER ADMINISTRATION CRITICIZED FOR SHORTCOMINGS

Minsk SEL'SKAYA GAZETA in Russian 1 Jul 81 p 2

/Article: "The Appearance of Well-Being Due to Ascriptions"/

/Text/ After examining the question of the gross violations by the organizations of Belglavenergo of the settlements for the electric power released to agricultural users, the Belorussian SSR Committee of People's Control noted that the executives of Belglavenergo (Comrades Khartanovich, Cherepko and Slizhevskiy) had not ensured the established procedure in the settlements for the electric power released to kolkhozes and sovkhozes and the proper maintenance of street lighting and meters and had not put a stop in due time to the violations of state discipline, which took the form of ascriptions of the sale of electric power.

Through the fault of the power system more than 4,000 electric meters, which have been installed at agricultural transformer substations, are not working, while the settlements for electric power with the consumers are made according to the installed capacity of the current consumers. So far 10,000 of them have not been placed on the balance sheet and accepted for maintenance by the enterprises of the power system, in the majority of villages the street lighting is out of order.

With the connivance of the executives of kolkhozes and sovkhozes and workers of Belsel'energo (Comrade Stankevich) the rayon power administrations and power sales administrations permitted more than 2,000 cases of the exacting from farms of monetary sums for unreleased electric power--this came to 601,000 rubles.

In December 1981 money was exacted from the 40 let Oktyabrya Kolkhoz of Yel'skiy Rayon for 54,300 kWh of electric power instead of the actually used 35,200 kWh. In the same month money for 127,000 unused kWh was exacted from the Zaveta Lenina and Pobeda Kolkhozes of Zhitkovichskiy Rayon, in September and December money was exacted for 110,000 unused kWh from the Krasnyy Oktyabr' Kolkhoz of Volkovysskiy Rayon, it was exacted respectively for 135,000 and 109,000 unused kWh from the Tarnovo Sovkhoz of Lidskiy Rayon and the Sovetskaya Belorussiya Kolkhoz of Korelichskiy Rayon.

During the year the Krucha and Avangard Sovkhozes of Kruglyanskiy Rayon overpaid 2,700 rubles, the Belorusskiy Sovkhoz of Vileyskiy Rayon--6,000 rubles, the Kolkhoz imeni Kirov of Myadel'skiy Rayon--1,100 rubles, the Podeba Kolkhoz of Zhabinkovskiy Rayon--1,200 rubles, the Zarya Kolkhoz of Polotskiy Rayon--10,000 rubles.

More than 450,000 rubles were groundlessly written off from the accounts of 1,119 farms for power used for street lighting. In recent years Belglavenergo instead of organizing proper operation has engaged mainly in seeking different means of transferring the maintenance of lighting networks to other departments.

In Mogilevskaya Oblast the streets are lit in less than 10 percent of the villages, while in Slavgorodskiy Rayon not one population center is lit. The situation is nearly the same in Krichevskiy, Cherikovskiy, Klichevskiy, Krasnopol'skiy and other rayons.

With the knowledge of executives of the main administration four of the six rayon power administrations in 1980 alone illegally attributed to agricultural consumers 10.4 million kWh of losses of electric power in their own networks, which worsened the financial status of kolkhozes and sovkhozes by another 104,000 rubles.

By thus including in the accounts the electric power which was not released, but was paid for by consumers, the subdivisions of the power system created the appearance of well-being in the fulfillment of the assignments on the reduction of losses in the networks, as well as the opportunity to receive bonus money.

For Belgalvenergo as a whole last year 601,000 rubles were illegitimately included in the fulfillment of the plan of sales and the profit, more than 200,000 rubles were groundlessly credited to the material incentive fund and more than 17,000 rubles in bonuses were paid, including 6,600 rubles to the personnel of Belglavenergo. The losses of power were illegitimately reduced by 26.9 million kWh, while the saving of fuel was overstated by 6,200 tons.

The situation which arose is explained by the fact that in Belglavenergo executive discipline and the expectations in this matter from the economic and technical services and divisions, as well as the monitoring of the state of financial and economic operations at subordinate enterprises, the workers of which, having the right to exact from consumers for nonacceptance monetary assets for electric power, regularly have violated the established procedure of settlements, are at a low level.

The Committee of People's Control bound Comrade Khartanovich, chief of Belglavenergo, to eliminate the shortcomings discovered by the check, to hold strictly accountable the officials who did not ensure the proper organization of the recording of the electric power released to agricultural users and allowed ascriptions in its sale, to recover within 3 months in accordance with established procedure the illegally paid bonuses and to return to kolkhozes and sovkhozes the amounts of money written off from their accounts; to make the appropriate changes in the statistical reports.

Comrade Cherepko, chief engineer of Belglavenergo, was reprimanded for shortcomings in the management of the technical services, the failure to take the proper steps in the organization of the recording of the electric power released to kolkhozes and sovkhozes and in the straightening out of the operation of street lighting.

Comrade Slizhevskiy, deputy chief for economic affairs of the Belorussian SSR Main Production Administration of Power and Electrification and chief of the economics, production and labor service, received a severe reprimand for the low level of management of the economic services of Belglavenergo and the rayon power administrations, as well as the subscriber divisions of the power sales administrations, which entailed mass violations of the established procedure of settlements with kolkhozes and sovkhozes and the illegal expenditures of assets for the payment of bonuses. A fine in the amount of a month's salary was imposed on him in partial compensation of the material harm done to the state by the illegal payments of bonuses.

Comrade Stankevich, chairman of Belglavenergo, was reprimanded for failing to ensure the proper monitoring of the observance of the established procedure of the planned consumption of electric power at kolkhozes and sovkhozes.

The Belorussian SSR Committee of People's Control directed the attention of republic Minister of Agriculture Comrade Sen'ko to the poor monitoring at kolkhozes and sovkhozes of the use of the assets intended for the payment for electric power.

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KAZAKH POWER SYSTEMS TRY TO SAVE ENERGY

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 2, 1981 pp 43-45

[Article by K. Iskakov, director of the republic's specialized production enterprise Kazenergonaladka [Kazakh SSR Enterprise for the Repair and Adjustment of Power Engineering Equipment]: "Fuel and Energy Must be Strictly Accounted For"]

> [Text] "Whatever the pace at which we develop power-engineering, saving fuel and energy will henceforth be a most important statewide task."--L. I. Brezhnev.

In Kazakhstan high-capacity regional production complexes are being developed dynamically and with confidence, and the richest reserves of natural resources for industrial production, which determines technical progress, are being drawn into economic circulation. It is understandable that this whole enormous national-economic complex should be provided reliably with electricity and heat energy. Because of this, the power of thermal electric-power stations is being greatly increased, and absolute fuel consumption is growing accordingly.

At the Yermakovskaya GRES alone 30,000 tons of coal--more than 400 carloads--are burned per day. In all, about 60 billion kw-hr of electricity are being generated and consumed, for which 60 million tons of coal, more than 4 million tons of mazut and about 5 billion cubic meters of natural gas have to be burned, for the needs of Kazakhstan's economy. It is not difficult to figure out what an enormous benefit a saving of just 1 percent of these energy resources can yield.

As a rule, savings for power-engineering equipment are increased by introducing new and technically improved units of great individual capacity into operation. However, the creative work of modernization and reconstruction, which is carried out by the collective of the specialized production enterprise Kazenergonaladka can play and is playing no small role, especially in improving the operation of old equipment and raising its efficiency.

The developments of our turbine department's collective merit attention. After many steps were taken to rebuild existing turbines, a great economic benefit was obtained, especially in the utilization of secondary heat for technical and heating purposes. Formerly the heat left with the cooling air and caused thermal pollution of the environment.

Nowadays the total saving of fuel throughout the republic from rebuilding GRES and TETs turbines is about 180 kilocalories per hour. The fuel saved would be enough to heat a city of almost 200,000 inhabitants.

Under the supervision of V. Chayanov, chief of the firebox and boiler department, a group of engineers designed and developed new burners, which passed production tests successfully. Their industrial operation was approved. More than 20,000 rubles is saved by each of the rebuilt boiler units, and their operating reliability has been raised.

The power-engineering equipment repair and adjustment workers have done major work at Pavlodarskaya TETs-3. With their help, an analysis of the effectiveness of fuel consumption was made, and a number of recommendations were presented, which were adopted for introduction, are being realized, and are providing the enterprise with higher technical and economic indicators.

Important work was done at the Alma-Atinskaya GRES. A successful creative solution for an optimal regime for operating the units enables smooth startup of them, allowing more than 5,000 tons of standard fuel equivalent to be saved per year.

A test indicates that the wide conduct of all possible experimental operations, combined with the rebuilding and modernization of equipment, enables equipment operation to be greatly improved and aids in more economical fuel consumption. It has been estimated that, if all the developments of the power-engineering equipment repair and adjustment workers were introduced, Kazakhstan's enterprises could save annually about 500,000 tons of standard fuel equivalent worth more than 16 million rubles. However, not all that is new and progressive is being introduced in good time. Such power systems as Gur'yevenergo [Gur'yev Regional Administration of Power System Management] and Karagandaenergo [Karaganda Regional Administration of Power System Management] are using only 20-30 percent of our recommendations. The innovations are not being used adequately at Almaataenergo [Alma-Ata Regional Administration of Power System Management] and Altayenergo [Altay Regional Administration of Power System Management].

Take just the work on analyzing the use of fuel at all TETs's. We send the power stations a practically finished program for eliminating bottlenecks in fuel consumption. It includes inexpensive measures whose realization can be accomplished comparatively quickly. Unfortunately, they are being implemented very slowly.

Deficiencies connected with the delivery, unloading and on-site transporting of fuel at thermal electric-power stations nowadays influences considerably the strenuousness of the whole process of generating electricity. Precisely arranged transport of the fuel conceals no fewer, if not more, opportunities for savings than increasing the efficiency of the units. Many power engineers are of this opinion. Therefore, the transport departments of the republic's new power stations are now being equipped with new machinery and with mechanization. Thus, in order to unload fuel from the railroad cars at large power enterprises, cartippers with crushing and milling machines have been installed, all the fuel storages are being furnished bulldozers and cranes, and the starting and stopping of fuel feed are accomplished from a control panel. But what to do at such power enterprises as Karagandinskaya GRES-1 and the capital's TETs-1 and other power enterprises that were erected in prewar days or during the war, where, until this day, tens of workers are engaged in loading and unloading work?

At Alma-Atinskaya TETs-1 a group of repair and adjustment workers under O. Rayfel'd, chief engineer of the fuel-transporting department of Kazenergonaladka, working with the station's personnel, managed to mechanize unloading by installing a side cartipper. On installing the equipment, the group's specialists proposed to and did modernize a large number of technical components, as a result of which all troubles of a production nature were eliminated.

The result of all the creative studies is reflected in the fuel-consumption indicator for generating 1 kw-hr of electricity. While 648 grams of standard fuel equivalent were consumed in 1960, the figure was 334 grams in 1980. And it stands to reason that even this is not the limit. During the 11th Five-Year Plan the drive for each gram of fuel will continue.

In solving the problem of economical fuel consumption, the rational use of electricity by consumers also is important. At each section and in each collective it is necessary to put up a strong barrier against all losses.

Advanced enterprises have more than once proved that it is possible to use steam, hot water and electricity more economically, making it possible to tighten the norms for the consumption of fuel and electricity. For example, the collective of the Alma-Ata Heavy Machinebuilding Plant promoted a broad drive for savings and thriftiness. Specialists have been developing and introducing progressive industrial operating processes. In welding operations, tens of milling machine tools have been replaced by one new gas cutting machine with a photo-optical system.

By introducing high-speed melting and new technology, machinebuilders are saving about 100,000 kw-hr of electricity per year. Under the supervision of R. Ro, the plant's power engineer, the repair and servicing of power equipment of the whole plant have been centralized, enabling equipment operation to be improved. A highly qualified group of electricians in the chief power engineer's section is effecting all the technical and organizational measures planned.

The collective of the Alma-Ata Knitwear Association imeni . E. Dzerzhinskiy had large heat losses over a number of years. The main cause was steam leakage. It was decided to install a new steam line. The costs have been completely reimbursed. Now the new steam line will enable heat to be consumed twice as economically. The knitwear plant's workers have saved 700 kilocalories per year through this measure alone, and carrying out all planned measures for savings last year enabled more than 2,000 kilocalories to be saved.

In the campaign for thrift here not only the electricians and heat-engineers are participating but also each member of the collective. Talks about saving resources in departments, brigades and sections or simply at workplaces have helped people to understand that the enterprise has to make a 10-fold payment for each kilowatt overexpended, so heat and electricity must be consumed economically.

Here are some of the measures aimed at achieving this purpose. At four boiler installations pumps work around the clock, pumping off condensate. Now the operation of these pumps has been automated, and they are switched on only when needed. Automation enables more than 100,000 kw-hr of electricity to be saved per year.

The attitude toward the use of electricity at Alma-Ata's Porshen' plant is completely different. An overconsumption of 4 million kw-hr of electricity per quarter is usual here. Waste reaches 50 percent in the nonferrous castings department. Electricity is overconsumed again on the manufacture of new output. In this same department losses from thermal radiation are great: they do not cover the doors of the preheater units. And there are other conduits for losses. During a check in the instrument shop, 130 luminaires of 250 kw each that someone "forgot" to turn off during the dinner break were observed.

Heat energy is being consumed wastefully at Alma-Ata Reinforced-Concrete Products Plant No 2 of Kazzhelezobeton [Kazakh SSR Reinforced-Concrete Products Association] of Kazminpromstroymaterialov [Kazakh SSR Ministry of Construction Materials Industry]. Pipeline cradles are being manufactured here in the open air, and in the winter a mass of heat escapes into the atmosphere. Many steam-curing chambers have not been sealed.

Closing all the conduits for losses of fuel and electricity, mobilizing all reserves for saving fuel and electricity resources, and teaching thrifty consumption thereof are matters of great national economic importance.

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CLEANING MACHINE PARTS WITH SYNTHETIC DETERGENTS URGED

Moscow SEL'SKAYA ZHIZN' in Russian 27 Jun 81 p 2

[Article by N. Tel'nov, doctor of technical sciences, professor, and V. Savchenko, candidate of technical sciences, associate professor: "Reserve of Economy"]

> [Text] Cleaning machine parts with synthetic detergents saves a considerable quantity of gasoline and other petroleum products.

As is known, the 26th CPSU Congress focused a lot of attention on guaranteeing an economical consumption of material resources. The largest specific weight among them is occupied by petroleum products. Consequently we would like to draw attention to that very important reserve of economy of replacing gasoline, diesel fuel and other petroleum products used to clean units, assemblies and parts of machines during their repair and maintenance with synthetic detergents.

Hundreds of thousands of tons of valuable petroleum products are currently used to clean machine parts. At the same time, synthetic detergents have been developed in recent years to replace them and are being manufactured industrially. The use of these detergents for these purposes yields a great effect and costs much less.

The colleagues of the scientific research laboratory of the V. P. Goryachkin Moscow Institute of Agricultural Engineers in creative cooperation with the scientists of GOSNITI [State All-Union Scientific Research Technological Institute for Repair and Operation of Machine and Tractor Fleets], the All-Union Scientific Research Institute of Surface Active Substances, and a number of other scientific research institutions have developed highly efficient technical detergents, in particular, those such as MS-6, MS-8, MS-15, labomide and some others.

These preparations are not toxic, incombustible and dissolve well in water. They are suitable for cleaning parts and assemblies made of ferrous and nonferrous metals and alloys. Their use is also very profitable. One kilogram of preparation dissolved in water replaces 25-30 kilograms of gasoline.

These detergents are currently being successfully used in machine construction, machine tool manufacture and radio engineering.

However, for a number of reasons, they have not yet become popular nationwide. There are two main reasons for this. First of all, extremely little synthetic detergent of technical purpose is manufactured, only 20,000-25,000 tons per year, while the demand for them is several times greater. Secondly, production of washing-cleaning equipment suitable for using these resources has not been set up.

Scientists of the branch laboratory of our institute have developed and verified in production new washing machines and units to clean parts from solid and resinous-oil deposits. A station for external washing of machines of different brands and dimensions for kolkhozes, sovkhozes and the rayon link of the USSR State Committee for Supply of Production Equipment for Agriculture with a closed system of use of the washing solution has been developed and is in the introduction stage. A universal washing machine has also been developed with economical consumption of fuel and energy resources, and a system for regeneration of the polluted washing solutions and closed technology for their use. The introduction of one such washing machine alone will significantly reduce the heat consumption, and thus save about 50,000 rubles. In addition, the system for regenerating washing solutions yields a considerable economic effect because of the decreased consumption of water and detergents, complete exclusion of the harmful effect of spent solutions on the environment.

I would like to draw attention to the instructive experience of the design-technological office for planning special technological equipment in the city of Nal'chik. Mechanized washing and drying complexes were developed there to clean items in instrument making. They are made right here at the experimental plant and are supplied to the customers. Each machine is supplied with a definite supply of MS-15 detergent. The enterprises are able to start operating the machine without delay. Unfortunately, this experimental plant cannot satisfy the orders of all of its customers.

The development of new detergents, effective technology and washing-cleaning equipment in the country is unfortunately not coordinated by anyone. It was previously suggested that a unified coordination plan be set up to develop technical detergents for all branches of the national economy, however this work has not been done to a full measure. Until now, each sector has attempted to solve the problem of cleaning machine parts and assemblies with its own efforts. This results in a diffusion of efforts and resources. The time has come to decisively reconstruct the work of the specialized design offices and plants to manufacture washing and cleaning equipment.

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GREATER USE OF FOAM INSULATION IN HOUSING NEEDED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Jun 81 p 2

[Article by N. Ivanov, head of department of thermal physics of the Yakutsk State University, doctor of technical sciences: "Foam Insulation: Who Will Adopt Its Industrial Introduction?"]

> [Text] In the fall of last year, SOTSIALISTICHESKAYA INDUSTRIYA in the observation "House Made of Foam" told of the laboratory for problems of thermal insulation of the Yakutsk State University. Although our work was quite correctly called merely a test of strength and a claim for tomorrow, offers for cooperation immediately were sent from all ends of the country.

It is indicative that the problem of thermal insulation is of great interest in the southern regions as well. The fishermen from Odessa are worried about heating their ships. The people of Simferopol are building an experimental hothouse complex which needs complete hermetic sealing. At the Stavropol' GRES they are concerned about thermal insulation for the equipment. Volgograd wants to heat the pipelines. They write from Moldavia that they plan to build a vegetable warehouse by using pneumatic structures and sprayed thermal insulation materials. If there is this demand for thermal insulation in the warm areas, the same can be said of Siberia, the Far East and the northern regions.

The use of materials made of solid and sprayed foams is especially effective in these areas.

In fact, a layer of solid foam 5 centimeters thick conserves as much heat as a brick wall a meter thick. What is the cost? Today the price of the initial raw material for foam plastics, foam polyurethane, is fairly high, 150 rubles per cubic meter. But even in this case the total effect of using foams in Yakutiya alone is estimated as tens of millions of rubles in the five-year plan. Moreover, whereas the natural construction materials, that is brick, lumber and cement have a tendency to rise in price, it is the opposite for artificial materials. Organization of mass production of the initial raw material for the same foam polyurethane would reduce its cost by three times as compared to the current.

What is solid foam? This is 5% material and 95% air contained in the pores. In other words, this is an enormous saving of the initial raw material, as well as the means of extracting, delivering and reprocessing it. Two transport aircraft are capable of carrying materials and equipment in a trip to erect an entire settlement by the spray method.

The range and potentialities for using new materials are very broad: thermal insulation of the existing and newly built buildings and structures, different trunk lines, hot water lines, slurry lines, sewer lines, oil and gas pipelines, and compressed gas depots. Spraying materials on light frameworks can basically alter the technology for erecting many types of industrial, agricultural, transportation, communal-general and other buildings, as well as rapidly re-equip temporary summer structures for operation in the winter. A destroyed building can even be restored.

The combination of sprayed materials and heat-enclosing pneumatic structures yields a special effect. The latter have similar advantages: low materials consumption and transportation volume, shortened periods of erection, and a very decent service life of 10-15 years. They are stable under complex natural-climate and engineering-geological conditions.

Last year in one of the expeditions of "Lenaneftegazgeologiya" we heated a borehole with the new materials. The annual economic effect was 85,000 rubles and 480 tons of fuel were conserved. The working conditions of the people became much better. The result of the experiment was that the association offered us a contract for thermal insulation of another four drilling units.

Of course the production engineers would like more, but the potentialities of our laboratory are still modest. Using the reserve of materials that we received for the initial stage of research, we succeeded in working only on two animal husbandry farms, heating a garage, also for the geologists, and equipping the athletic structures in Yakutsk itself.

We thus cannot answer in practice the numerous requests and offers that still come to us after the publication of SOTSIALISTICHESKAYA INDUSTRIYA.

There is no doubt that the output of raw material for production of foam plastics must be drastically increased, especially for the regions of Siberia and the extreme north. It thus would have been expedient to set up major production of insulating materials in the structure of the South Yakutsk industrial complex. Why here namely? A powerful coal and metallurgical complex is being set up in South Yakutiya. The production of synthetic materials could develop as an accompanying industry, the more so since there is sufficient coal in the republic and there is gas, and oil has already been found. The most interested consumers are also nearby. It is therefore legitimate to raise the question of setting up a scientific production association for the manufacture and use of insulating materials and advanced construction designs in the Yakutsk State University.

The problem of thermal insulation needs more active working out. In our opinion, special attention should be given to the production of thermal insulating materials with the use of local and secondary raw material and wastes. This meets the requirement of a strict pattern of economy which penetrated the Main Directions for the Development of the National Economy that were adopted by the 26th CPSU Congress. Yakutsk, for example, by using secondary pulp raw material and the glass wastes which are currently just dumped could obtain up to 30,000 cubic meters of foam glass and the same quantity of insulation materials which are close in their properties to foam plastics. It appears that it is expedient to set up a special council for problems of insulation. One of the institutes of the USSR Gosstroy could coordinate the research. It would be worth it to place the functions of the main organization on the All-Union Scientific Research Institute of Synthetic Resins.

The problem of insulation is multifaceted. Preservation of heat in the final analysis is conservation of fuel and energy resources. It is also more advanced working conditions for people, and more organized and comfortable life for them.

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ENERGY CONSERVATION

KOSTROMA GRES LAUDED FOR FUEL CONSERVATION

Moscow PRAVDA in Russian 22 Jun 81 p 2

[Article by Ye. Borisov, first deputy minister of power and electrification of the USSR: "Only 10 Grams"]

> [Text] The Kostroma GRES has been the leader for many years of the competition for fuel conservation that has been underway at the enterprises of the USSR Ministry of Power and Electrification. Today it consumes 317.7 grams of comparison fuel for each kilowatt-hour of electricity sold to the consumer with a planned indicator of 327 grams. Only about 10 grams have been gained. But because of the saving which is modest at first glance, the collective saved about 200,000 tons of mazut, 4,000 railroad tank cars in the last five-year plan.
>
> By what means they have achieved success! What helped the collective to reach such high results in the competition for economy and conservation? How is the experience of the Kostroma power engineers being spread to the other thermal power plants of the country? This is discussed in the article published today.

The sources of the success of the Kostroma GRES collective lie first of all in the mood of the collective, in the well-organized competition for economy, and the fact that the struggle for a gram of saving of fuel is conducted by everyone, from the worker to the director. It is no accident that many technical and technological innovations which were subsequently spread to other power plants were born precisely at the Kostroma GRES.

Together with the specialists of the Soyuztekhenergo association, they have introduced an automated system for starting-up large energy units here. The Kostroma workers were some of the first to switch all the boilers to a so-called neutral water regime. This permitted acid washing of the boilers to be reduced to once every 4 years instead of annually. Reconstruction of the high-pressure preheaters increased the power of each turbo-unit by 204 kilowatts and reduced fuel consumption by 1,760 tons per year.

I would like to make special note of the collective's struggle for high quality repair of the units. The operators have been given guarantee certificates for repaired units for several years already. Repair work is done by brigade contract.

An effective system has been set up of active encouragement for high quality of repair and continuous operation of the equipment. As a result, in the last five-year plan alone, the interrepair period for equipment operation rose from the standard 3 to 4 years. The repair here is often accompanied by updating and improvement in the machines, by the way. This, for example, resulted in an increase in the efficiency of the turbines by 1.76%. This saved 6,250 tons of fuel for each power unit. It is a great merit to the collective that it operates stably.

The USSR Ministry of Power and Electrification is undertaking a number of measures to spread the experience of the Kostroma GRES into the practice of other collectives of thermal power plants. The ministry staff has held many out-of-town sessions and also conducted an all-union conference of power engineers to exchange the leading experience. Last fall at the VDNKh SSSR [Exhibition of Achievements of the National Economy of the USSR] there was a specialized exhibition dedicated to the experience of the Kostroma power plant. Studies of the school of leading experience were based on it. One should admit, however, that the effect from all of this work could be considerably more weighty.

Why? Because in mastering the experience, the workers of the power plants focus primary attention on the technical aspect of the matter. They, like the Kostroma workers, update the units and even introduce their own technical innovations. This of course produces an effect, but nevertheless it is very important to mobilize the entire collective to struggle for economy, to create a healthy moral and psychological climate and to educate the people to see and support new ideas. Even good aesthetic design of the shops and a model order in the city of power engineers, Volgorechensk play a definite role. Of course it is not easy to borrow the experience of the Kostroma workers in toto, but definite work is being done in this direction. If our collectives were on the level of the leading groups in their indicators, then the country would have a very large fuel saving. There is food for thought here and something to work on.

By the way, we have many collectives of power plants who "are on the heels" of the Kostroma GRES, and at times overtake it, also achieving highly effective and economical work. They include, for example, the Sredneural'skiy GRES where USSR State Prize laureate, senior machine operator of the power unit A. Kurochkin works. The specific consumption of comparison fuel at this GRES has been brought to 316 grams per kilowatt-hour. The power engineers of the Zaporozh'ye GRES reach good indicators in the competition (as is known, they were the first in the branch to fulfill the assignment of the last five-year plan), as well as the power engineers of the Belovo, Konakovo, Reftinskiy, Lukol'mskiy, Kirishi GRES, Moscow TETs-21 and other thermal power plants.

In giving the leading workers their due, I must note with regret that we do have those power plants where overconsumption of fuel is allowed. They include the Yermak, Pridneprovsk, Tbilisi, Verkhnetagil'skiy, Yayva and certain other GRES. The Glavuralenergo, Glavvostokenergo, and Kazakhstan Ministry of Power and Electrification did not cope with last year's assignment to reduce specific fuel consumption as a whole.

What prevents the collectives from reaching high indicators in the competition for conservation and economy? There are external reasons here, for example, the decreased quality of certain types of fuel, and internal, for example, the equipment is not always repaired with high quality, and this results in losses of steam and condensate. Insufficiently accurate working regimes increases fuel consumption in the boilers. Many power plants do not receive a sufficient quantity of spare parts from the machine construction plants. The S. M. Kirov Khar'kov Turbine Plant, for example, last year supplied the thermal power plants with fewer sets of vanes than stipulated by the plan. In the last five-year plan, because of plant flaws, the boilers had to be halted many times. Any forced stopping of the units at the GRES is an inevitable overconsumption of fuel.

There is a constant shortage of lead storage battery plates, molybdenum-containing steels, ion-exchange resins and filter materials. The orders of the power engineers are not fulfilled for special electrodes, steam cut-off fittings and various types of pumps.

Or take the following example. Over 10 years ago, the scientists made a heat-resistant alloy for the nozzles for the steam boiler burners. The innovation increases the service life of these assemblies six-fold. Production of the nozzles should have been started 10 years ago. But the Barnaul boiler and Syzran' pipe construction plants that were entrusted with this important business, have not solved the problem. It should be said that the quality of the coal supplied has deteriorated in recent years. For this reason alone, a number of thermal power plants have seriously impaired their operation. Because of the high ash content of the coal, the power engineers have been forced to use a lot of expensive mazut in addition.

It is clear from what has been said that it is also important to further develop competition in the branch for conservation and economy and to make more extensive use of the experience of the Kostroma GRES which was awarded the Order of the Banner of Labor for successful work in the 10th Five-Year Plan. In the 11th Five-Year Plan it is necessary to do everything so that this experience becomes the property of the greatest number of collectives as possible.

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ENERGY CONSERVATION

BRIEFS

ELECTRICITY CONSUMPTION REDUCTION--Zhitomir--Posters hung in visible places reported the calculations of the specialists to the residents: if one 60-watt lamp is turned off each evening in an apartment 3 minutes earlier, or is turned on 3 minutes later, the city will save 20 tons of comparison fuel per year. How can this be checked? The Zhitomir newspapers and broadcasting invited the residents to participate in operation "Kilowatt." The people responded with interest. This experiment took place for 2 days, on Saturday and Sunday. According to data of the Eastern Enterprise of Electric Networks, the saving exceeded 40,000 kilowatt-hours. The results of operation "Kilowatt" graphically convince that there are no trivialities in questions of conservation. Another aspect is important: this mass action creates favorable conditions for educating children and adolescents in economy. [By Zh. Tkachenko] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 1 Apr 81 p 2] 9035

ELECTRICITY CONSERVATION--Kemerovo, 27 Apr (TASS)--The Kemerovo association "Azot" saved enough electricity during the year to run the large enterprise for 12 months. The success is even more remarkable because large claims were recently made against the collective for above-standard consumption of energy. They began here with a search for reserves at each work site. On the initiative of the communists, many toilers set personal commitment plans for prudent consumption of raw material. From the beginning of this year, the collective of "Azot" produced a thousand tons of products above the plan after saving in this case millions of kilowatt-hours of electricity and many other raw materials and heat resources. [Text] [Moscow PRAVDA in Russian 28 Apr 81 p 1] 9035

GRANULATED COAL--Our country annually consumes 100 million tons of coal for communal-general needs. This is an enormous number. At the same time graded coal is needed. Its efficiency in combustion must be no less than 60%, as is required by the branch standards. If so-called run-of-mine coal is used (mainly coal fines), then this results in overconsumption of fuel, premature wear of the equipment, interruptions in the heat supply, and pollution of the air basin. Nevertheless, coal fines have to be burned in domestic furnaces and in boiler furnaces because there is not enough graded coal. Is there a solution to this situation? Yes there is: convert the coal fines into granules. This new type of graded fuel is now becoming more popular in the GDR, CSSR and other countries. Our technology for fuel granulation was developed by the Institute of Mineral Fuels of the USSR Ministry of the Coal Industry. The granules were tested in the Academy of Communal Services and recommended themselves from the best aspect: they are practically smokeless and have higher efficiency. The expected annual saving of coal with the use of granules in communal services alone is roughly 2.5 million tons. It would be worth it for the Ministry of the Coal Industry to be concerned about the most rapid set-up of industrial production of granules made of coal fines. [By O. Borshchov] [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian Jun 81, No 25 p 11] 9035

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LIGHT BULBS, CONSERVATION CONTEST--Kamensk-Ural'skiy, Sverdlovskaya Oblast--I read very attentively in your newspaper of 5 May the note of M. Tendler, "Light Bulb at the Entrance." The author is correct, we truly squander much electric power both at home and at work. It seems, however, that it is difficult to implement the suggestion on equipping enterprises with special automatic devices for turning the light on and off and this will not be done immediately. In my opinion, there are enough other untapped reserves for saving. First of all it is necessary to ensure normal trade in incandescent bulbs of lower wattage. At present it is often necessary to screw in 100-W bulbs where it is entirely possible to manage with a 40-W or even a 25-W bulb. And, of course, everyday explanatory and organizing work, which is aimed at saving electric power, is necessary. Moreover, it can assume the most diverse forms. Not long ago in our newspaper KAMENSKIY RABOCHIY an account was given of how the contest "Who Is the Most Thrifty?" is being held in Ufa. This initiative was to the liking of many, it was also decided to hold such contests in our city. The city soviet executive committee has set up a special staff which has elaborated the basic rules of the contest and will tally its results quarterly. /By V. Votintsev/ /Text/ /Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Jun 81 p 2/ 7807

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MANGYSHLAK OBKOM DEPARTMENT CHIEF ON BUZACHI OIL

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 4, Apr 81 pp 10-13

[Article by T. Demko, manager of the Oilfield Transport Section of the Mangyshlakskaya Obkom of the Kazakhstan Communist Party: "The Country Needs Buzachi Oil"]

> [Text] "Expand geological exploration for oil and gas in West Kazakhstan, and speed up assimilation of the oilfields on the Buzachi Peninsula." (From "The Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990.")

The Uzen', Zhetybay and other oil and gas fields were discovered on the Mangyshlak Peninsula at the start of the 1960's. This enabled a new oil and gas-bearing region of the country to be established there. In a short time cities and settlements rose up in the region, asphalt-topped roads and a railroad were laid, and electric-power lines, trunk oil and gas pipelines, and hundreds of other facilities for developing and oil and gas fields and for social, cultural and personal-amenity purposes were built. The organization of oil and gas recovery at Mangyshlak enabled a start in the broad development also of such branches of the industry as gas treatment, chemicals and power engineering. It was on the basis of all this that the Mangyshlak regional production complex, whose main task is a continuous increase in oil and gas recovery, was established.

The Uzen' field produced the first Mangyshlak oil. This was at the start of the 1960's. The geologists continued to search. And in 1974 they discovered a new oil-bearing region on the Buzachi Peninsula. Exploration has been completed here now at three oilfields--Kalamkas, Karazhanbas and Severo-Buzachinskoye--which have been turned over for industrial development. They will define the later development of the oblast's oil industry.

It should be noted that the region of the Buzachi Peninsula and the adjacent Mertvyy Kultuk salt lake is now the most promising area for growth in oil and gas reserves. In addition to the fields that have been turned over for development, flows of oil have been obtained at three new areas. But the Kazakh SSR Ministry of Geology is still preparing new structures and expanding exploratory drilling at a slow pace.

Before proceeding to questions of assimilating the new oilfields discovered on the Buzachi Peninsula, it is necessary to outline, albeit briefly, what this region encompasses. This is a coastal zone of the Caspian Sea, which, when there are westerly winds, is submerged by the Caspian's driving waters. The whole of the peninsula is difficult of passage because of the large number of sors, that is, salt lakes. The fields are far, as much as 300 kilometers, from the oblast's main industrial centers. There is not one populated place on the whole peninsula or adjacent regions, and there is no drinking water close by. Therefore, many difficulties attended start of the assimilation of the natural wealth.

Without waiting for a final assessment of the reserves at the fields discovered, USSR Gosplan, at the initiative of the oblast party organization, ordered a number of ministries and agencies to begin design work, and 1979 saw the start of the buildup of the oil and gas field facilities and the construction of outside communications: electric-power lines, roads, the Shevchenko-Buzachi pipeline, a water line and a number of other facilities.

Union ministries--the ministries of petroleum industry, of construction of petroleum and gas industry enterprises,and of power and electrification--made a major contribution to assimilation of the peninsula's petroleum wealth, as did our republic's ministry of roads and automotive transport. Twenty-seven construction and installing organizations, 11 of them from other parts of the country, were acquired for building up the Buzachi oilfield facilities.

Active work of all the operating enterprises and organizations enabled the recovery of crude to start at the Kalamkas field in 1979, and in 1980 more than 1.2 million tons had been recovered there. Collectives of oilfield workers, drillers and builders capable of solving complicated problems took shape at the Buzachi fields.

Since the start of assimilation of the fields, more than 100 oil wells have been drilled, a system for gathering crude within the field and transporting it has been built, and the Kalamkas-Karazhanbas-Shevchenko oil pipeline and the 220-kilovolt Shevchenko-Karazhanbas-Kalamkas power transmission line are operating. Drinking water comes to the field from a field of the Kzylkum, and rotating-type duty settlements with the amenities and many other facilities have been built for the workers.

But what has been done is only the beginning. As was noted above, the main growth in recovery of oil throughout the oblast during the 11th Five-Year Plan will be obtained from Buzachi Peninsula fields, so their assimilation must be speeded up greatly.

Nature does not pamper the oilfield workers. The Mangyshlak oilfields have many specific peculiarities that complicate their development greatly. Although the oil formations are situated at a depth that is not great--from 300 to 1,000 meters, recovery from them is difficult. The fact is that the oil-bearing formations are complicated because of broken-up sandstones. As the oil moves through them, the rock is eroded and carried into the well, and then into the oilfield's internal gathering system, blocking it up. This oil's viscosity is hundreds of times as great as that of water. Because of this, the flow is very weak. If these fields are developed without reservoir stimulation, only 10-15 percent of the crude can be gotten from it.

Domestic and foreign experience indicate that the most effective methods for stimulating the formation in such cases are thermal methods and the injection into it of viscous liquids. It was decided to develop the Kalamkas field by maintaining formation pressure, by injecting water thickened with polyacrilamide, by means of which the viscosity of the oil and of the water injected into the formation are identical. Under these circumstances the oil is driven uniformly from the formation, and the water does not break through to the bottom holes of the production wells.

At the Karazhanbas field the injection into the formation of high-pressure steam and wet in-situ combustion (that is, combustion of part of the oil in the formation, which enables extraction of the remainder) has been proposed as the stimulating system. This will enable withdrawal from the formation of as much as 40-45 percent, the extraction of 3-4 times as much oil.

However, the introduction of these methods is a very complicated matter. It is necessary to assemble high-capacity compressor stations for injecting air into the formation, installations for preparing water and obtaining high-pressure steam, and stations for preparing and injecting the thickened water into the formation. All of the equipment for these purposes is experimental; it still has not undergone wide tests in operation, for much of it is not produced at all in our country but is acquired abroad. Also needed are new reactants, which we also do not have, and it is not known when their production will be arranged.

Moreover, for complete assimilation of the fields on the Buzachi Peninsula, about 15,000 production wells and injection holes must be drilled. In order to bring the fields up to maximum recovery of the oil, almost half of all the planned wells will have to be put into operation. The use of thermal methods for stimulating the formation presents very high requirements on the design and quality of cementing of the wells, which hamper timely construction thereof.

The current organization of well-drilling lags behind the rising pace of assimilation of the fields. A technology for drilling and casing wells still has not been developed for Karazhanbas, so almost all the wells built there have poor-quality cementing, and this in turn does not enable test work for creating in-situ combustion to begin.

Because of a lack of lightweight rigs for drilling holes 300-400 meters deep, heavy installations that require much time for assembly and disassembly are required. So each hole takes 10-12 days to drill instead of 3-4.

The number of drilling brigades grows slowly. The drillers are being provided poorly with the necessary equipment, pipe and tools, chemical reactants, and other materials. And, as a result, major idle time of an organizational nature occurs. Technological discipline is low; this leads to frequent accidents and to complications during drilling.

Step-up of the pace of recovery at the new fields depends greatly upon the timely build-up of all the field installations required. In order to start up wells for operation and to begin to recover oil, it is necessary to build oil pipelines and power lines to them, clustered facilities where it will be possible to measure well flows and to pump oil to gathering points, installations for dewatering oil and for stimulating the formation, settlements for rotating-duty type workers, dining rooms, production bases and hundreds of other facilities. Where several hundred new wells are to be introduced annually, capital investment for building up oilfield facilities will run to several tens of millions of rubles. Under such circumstances, precision work by construction organizations is a guarantee of successful fulfillment of plans for recovering oil.

At present only the first large complex of buildings and structures has been introduced on the Buzachi Peninsula. This will satisfy the oilfield workers only at the initial stage of assimilation of the fields. For an increase in the pace of oil recovery it is necessary, as a minimum, to double the amounts of capital investment assimilated.

Mangyshlakneftegazstroy [Mangyshlak Trust for the Construction of Oil and Gas Industry Enterprises] of the Ministry of Construction of Petroleum and Gas Industry Enterprises is building the facilities for all our oblast's fields. This trust's capacity will enable 38-40 million rubles of capital investment to be assimilated annually, but it is required that at least 60 million rubles' worth be assimilated right now. These amounts will increase later.

Consequently, the ministry should take all the necessary steps to strengthen and expand the trust's capacity.

Complexity in developing the new region results from the fact that the oblast is lacking completely in free worker personnel. Operating enterprises are short of personnel right now. According to our calculations, an augmentation of more than 5,000 people will be required for operation at Buzachi Peninsula fields in 1981-1985, just for the oil-recovery enterprises, not to mention the construction, transportation and other organizations. We cannot recruit people from other regions to live here because of the lack of housing. It is no accident that the rotating-duty type method of operation has been adopted for developing the Buzachi Peninsula. Oilfield workers from Shevchenko, Uzen', Krasnodar, Groznyy and Makhachkala are brought by aircraft to the oilfield or drilling site, where they work for 15 days, and then fly back home for rest for the next such period. These people live in the rotating-duty settlements. Since the construction of well-arranged dormitories, dining halls, clubs and other social, cultural and personal-amenity facilities is lagging, many workers are not satisfied with the living conditions. Because of this there is a large turnover of personnel, and stable collectives are created slowly.

The oilfield workers and the builders are experiencing great difficulties in delivering workers and freight to the fields, since the sole means for hauling still is automotive transport, and each day hundreds of tons of freight have to be moved a distance of up to 300 km.

There are still a large number of problems and complications, but I will not dwell on them, since enough has been said for an understanding of what difficulties Mangyshlak's oilfield workers have to overcome.

In order to carry out successfully tasks for speeding up assimilation of the fields on the Buzachi Peninsula, purposeful work of Mangyshlakneft' [Mangyshlak Oil Recovery Association], Mangyshlakneftegazstroy, and all other oblast collectives is required. There is still no precise interaction among these organizations. This relates especially to Mangyshlkaneft' and Mangyshlakneftegazstroy. The association does not take timely measures to issue design papers for the construction of facilities. Moreover, the quality of the designs is low: they do not call for the integrated solution of all questions.

The provisioning of supplies and equipment for the drillers and oilfield workers was not organized satisfactorily. The lack of organization in the amenities and dining in the rotating-duty type worker settlements provokes much censure, and work to organize stimulation of the reservoir is held back.

Mangyshlakneftegazstroy permits delays in the turnover of facilities for operation, and the quality of the construction leaves very much to be desired. All this tells negatively on an increase in oil recovery.

Association and trust supervisors must restructure their work and guide the efforts of the workers in fulfilling the tasks set for them.

At the same time, the builders and oilfield workers need help from a number of ministries and agencies.

The USSR Ministry of Petroleum Industry should examine these problems and solve them as quickly as possible:

--enlist the country's leading institutes in development of the design and technology of casing wells intended for thermal stimulation;

--provide Mangyshlakneft' drillers with highly productive mobile rigs for drilling wells 300-400 meters deep;

--create an independent drilling enterprise in the association system, in order to intensify technical monitoring and improvement of work organization at Buzachi Peninsula oilfields;

--allocate the association chemical reactants of the required quality in the necessary amounts for maintaining reservoir pressure at the Kalamkas field;

--extend help to the association in providing for the timely issuance of design papers for building facilities at new oilfields;

--solve, jointly with the USSR Ministry of Construction of Petroleum and Gas Industry Enterprises, the question of creating an independent construction organization for building up the facilities of the oilfields on the Buzachi Peninsula; and

--strengthen the association with the necessary automotive transport and special equipment.

The USSR Ministry of Construction of Petroleum and Gas Industry Enterprises must strengthen the construction-industry base of Mangyshlakneftegazstroy so it can greatly increase the amount of construction and installing work performed for the association.

The USSR Ministry of Power Engineering should speed up the creation and introduction into operation of the second circuit of the 220-kilovolt Shevchenko-Karazhanbas power-transmission line.

The Kazakh SSR Ministry of Roads must speed up completion of the construction of the dike and increase the amount of freight hauling for all enterprises engaged in assimilating the new fields.

We are also awaiting assistance from the Kazakh Civil Aviation Administration in solving transport problems.

Acceleration of the flow of crude oil from the Buzachi Peninsula also depends greatly upon assistance from the ministries of trade and public health, Goskomsel'khoztekhnika [State Committee for Agricultural Equipment] and Gossnab, and a number of other ministries and agencies of our republic.

It should be noted that the republic's scientific-research institutes still pay little attention to Mangyshlak's oilfield workers. They stand aside with regard to solving the most complicated problems of mastering the new fields. And there are very many such problems.

Strengthening the country's fuel industry is a nationwide task. Therefore, the oilfield workers hope that all the above-named ministries and agencies will participate properly in assimilating the new fields on the Buzachi Peninsula. In their turn, Mangyshlak workers will do all that is necessary to carry out the established tasks.

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PAST HISTORY, FUTURE PROMISE OF AZERBAIJAN OIL INDUSTRY DESCRIBED

Baku AZERBAYDZHANSKOYE NEFTYANOYE KHOZYAYSTVO in Russian No 5, May 81 pp 1-5

[Article by N. M. Aliyev, minister of oil refining and petrochemical industry of AzSSR: "Urgent Problems of Developing the Oil Refining Industry of the Azerbaijan SSR in the 11th Five-Year Plan"]

[Text] The oil refining industry of the AzSSR has a renowned history. It played an important role during the years of establishment of Soviet power. During the harsh years of the Great Patriotic War, our republic, the primary supplier of oil products, guaranteed continuous supply of the front and the national economy with engine fuel and lubricants.

The direction and rates of development of the oil refining sector were determined at all stages of its history by the requirements of the country's national economy.

A number of shortcomings occurred in the sector by the beginning of the Ninth Five-Year Plan:

noncorrespondence of the structure of the enterprise production plan to modern requirements, insufficient volume of catalytic cracking processes, lack of reforming processes, hydrorefining of fuels and oils, and insufficient output of deparaffination and deasphalting processes;

unsatisfactory condition of subsidiary services, pipelines and sewage-entrapment system; lack of biological treatment works and insufficient development of the circulating water supply system;

lack of relation between individual technologically related objectives.

In order to further improve the sector, a radical reconstruction of the republic's oil refining sector was planned. Its main purpose was to improve the technical level of production and the manufactured product, in the first place, engine oils and fuel.

The developed plans stipulated concentration of oil refining at two plants with specialization, the Vladimir Il'ich Novobaku Oil Refinery on a fuel profile, and the 22nd CPSU Congress Baku Oil Refinery on an oil profile. In this case it provided for elimination of low-output, obsolete and outdated units, introduction of means of automation, mechanization and dispatching, regulation of the subsidiary services, improvement in the quality of the manufactured products and technical and economic indicators.

Radical reconstruction in the Eighth and Nine Five-Year Plans was not possible because of the limited capital investments and insufficient output of the construction organizations.

Starting with the 10th Five-Year Plan, because of the help of the Azerbaijan Communist Party Central Committee and the Azerbaijan SSR Council of Ministers, a decisive break was slated in the further development of the sector.

Among the specific suggestions directed at accelerating the development of definitive sectors of the republic's industry, the Azerbaijan Communist Party Central Committee provided for reconstruction of industry, considering it one of the key problems in transforming the republic's industry.

Capital investments were allocated for the 10th Five-Year Plan to implement the first stage of reconstruction. They were almost 1.5-fold greater than the allocations in the preceding five-year plan.

Among the measures for technical rearming and reconstruction of the Baku petroleum plants, creation of an advanced plan for refining oil raw material with the introduction of highly productive single facilities and a number of secondary processes which guarantee intensification of the refining occupies a prominent place.

Special attention was focused on facilities associated with improving the quality of engine fuels and oils, the use of low-sulfur oils of Azerbaijan to produce electrode coke and a number of other petroleum products, and to provide the complex of petrochemical industries with raw material.

A lot was done in the elapsed period of the 10th Five-Year Plan. Powerful ELOU-AVT atmosphere-vacuum oil refining units and units for catalytic reforming of low-octane gasolines were constructed in short periods at the Vladimir Il'ich Novobaku Oil Refinery. This year, construction is being completed on a new asphalt coking unit. A unit was built at the 22nd CPSU Congress Baku Oil Refinery for hydrorefining of oil. Construction is ending of the second ELOU-AVT unit which has been specialized for production of narrow-fraction oils. Units of deparaffination and deasphalting have been additionally equipped in order to augment their output. Facilities have been erected and put into operation for reception of oil by sea transport and removal of the sea and railroad arrival of petroleum products beyond the limits of Baku. A number of important reconstruction measures have been taken.

Start-up in 1976 of the ELOU-AVT units at the Vladimir Il'ich Novobaku Oil Refinery permitted replacement of a number of low-output outdated units for primary oil refining and guaranteed organization of refining of sulfurous West Siberian oils. Introduction of the catalytic reforming process which was an important step in technical progress of the sector permitted considerable improvement in the technical level of producing automotive gasolines, reduction in production of low-octane A-72 ethylated gasoline, increase in the output of high-octane AI-93 gasoline, and guaranteed output of nonethylated A-76 gasoline. This is very important for improvement in the working conditions in the production section of gasoline compounding, as well as one of the means of reducing pollution of the atmosphere with exhausts, especially in cities with intensive automobile traffic.

The facilities that were introduced at the 22nd CPSU Congress Baku Oil Refinery are an integral part of the program for technical rearming of the oil industry that is being implemented to improve the level of technology and the quality of the manufactured engine oils. A number of measures have been taken at the Karayev Baku Oil Refinery to improve the quality of diesel fuels, including, introduction of leaching and fuel washing methods in an electrical field. At the Baku plant "Neftegaz," the method of purifying industrial waste water with the help of A-4 reagent which was developed by the Institute of Petrochemical Processes of the AzSSR Academy of Sciences has been successfully introduced. It permitted practically waste-free water supply to the enterprise.

Implementation of the first stage of reconstruction permitted an increase in the specific weight of secondary processes from 22.8 in 1975 to 25.5% in 1980. The output of products with the state sign of quality rose from 4.5 in 1975 to 27.2% in 1980.

At the same time that new production technology was introduced, a number of measures were taken to improve the condition of the plant services, to separate and purify industrial effluent, make the maximum use of air cooling equipment, introduce circulating water supply systems, and others.

The evolved work on reconstruction will be continued in the 11th Five-Year Plan.

The resolution of the 30th Congress of the Azerbaijan Communist Party on the fiscal report of the Azerbaijan Communist Party Central Committee states: "Continue the radical reconstruction of the oil refining industry. Attain a considerable increase in the volumes and improve the quality of petroleum products, and increase in the resources of hydrocarbon raw material for the chemical and petrochemical industries by extensive use of advanced production processes and intensive oil refining."

The trend noted in recent years for reduced extraction of low-sulfur oils and increased extraction of sulfurous made it necessary to set up their refining at the Baku oil refineries.

According to the decision of the USSR Gossplan and the USSR Ministry of the Petrochemical Industry, starting in 1978 refining of sulfurous oils was started at the enterprises of the Ministry of the Petrochemical Industry. Delivery of these oils in increasing volumes is planned: from 7 in 1978 to 30-40% in 1985.

This significant rise in the percentage of sulfurous oils in the total volume of oil refining in the republic advances a number of new and complicated problems which require steady attention. They include problems of environmental protection, industrial hygiene and accident prevention, improving the efficiency of production through intensified separation of target products, improvement in their quality and recovery of wastes. This is not the first year that we are preparing to solve these problems. A lot of scientific research and planning development has been done. An efficient production plan has been formulated to refine sulfurous oils, including extensive introduction of the sulfur-purification process, as well as construction of a highly productive complex of catalytic cracking based on refining the sulfurous raw material with its preliminary desulfurization and production of commercial-grade sulfur. A set of units, works and technical equipment has been defined to realize this plan.

Among the most important facilities of the 11th Five-Year Plan are the production units associated with intensified refining of sulfurous oils at the Vladimir Il'ich Novobaku Oil Refinery: catalytic cracking of vacuum distillate, hydrorefining of diesel fuel, monoethanol amine purification of fuel gas, and production of sulfur.

In the area of lubricants, it remains in the 11th Five-Year Plan to complete the program of technical rearming of the set of units to manufacture engine oils, for increased volumes of deasphalting, selective purification and deparaffination, as well as the introduction of new and highly effective IKhP-21 oil additives. This will guarantee the manufacture of the entire volume of engine oils from paraffin oils of the Sangachaly type with complete halting to manufacture of low-index distillate oils from oil of the Neftyanyye Kamni field.

High requirements are made for the industrial enterprises in light of the decree of the Azerbaijan SSR Council of Ministers "On Measures to Strengthen the Conservation of Fuel and Energy Resources" of 20 December 1980. Plans have been developed at all enterprises of the ministry for organizational-technical measures on a prudent use of raw material, reduction in the production losses of oil and petroleum products, expanded use of secondary energy resources, and decrease in the specific consumption of fuel, heat and electricity at each production section. One of the most important tasks of the oil refiners in light of this decree is intensified oil refining and improved separation of light oil products.

Intensified separation is achieved in addition to improved extraction of light petroleum products from the oil on primary oil refining units to considerably greater dimensions because of an expansion in the secondary refining processes. In this case, the output of gas also rises and resources of hydrocarbon raw material are broadened for petrochemical synthesis.

Another no less important task that was set for the Baku plants is the use of valuable low-sulfurous raw material to produce scarce electrode coke. In 1981 construction should be completed on a unit of delayed coking, and in subsequent years, it is planned to introduce coke calcination assemblies in order to improve the coke quality.

At the same time that new production facilities are being created and advanced production plans and processes are being introduced, in the 11th Five-Year Plan work will be continued to intensify the active facilities, make the maximum use of their potentialities and increase the efficiency of production by technical re-equipping, updating of equipment and stabilization of their raw material base. This refers in the first place to the process of catalytic cracking which is the leading for gas-fractionation, alkylation and polymerization processes.

The steady growth of production and introduction of a number of new facilities into operation require expansion of the subsidiary services. Problems arise of searching for ways to cover the shortage of fresh water, reduce consumption of energy resources, improve the operation of the circulating water supply system, and take measures for further decrease in production losses. A lot of work remains to be done to introduce processes of biological purification and additional purification of industrial effluent.

One of the adopted trends for improving the efficiency of production and labor productivity is the further development of automated systems of controlling the production processes and enterprises.

The 11th Five-Year Plan provides for creation of organizational-production automated control systems (OPACS) at two enterprises of the ministry: Vladimir Il'ich Novobaku Oil Refinery and 22nd CPSU Congress Baku Oil Refinery. Today the OPACS which encompasses both tasks of controlling the production processes and functional tasks of controlling the enterprises are acknowledged as the most effective which permit solution of a number of interrelated problems at different levels of production control with the minimum labor expenditures and with the fewest technical resources.

Among the automated systems for controlling production processes it is planned to introduce ACSPP for the units installed at the 22nd CPSU Congress Baku Oil Refinery: for oil hydrorefining, ELOU-AVT, deasphalting and deparaffination.

Questions of improving the quality of products at the given stage cannot be successfully solved without a systems approach to them, strict regulation of all stages of planning, supply to production and output of products. These potentialities have been allotted to the complex systems for controlling product quality (CSCPQ). In 1980, this system was introduced at the 22nd CPSU Congress Baku Oil Refinery. Development of the CSCPQ will be completed this year at two other plants of the ministry, the Vladimir Il'ich Novobaku Oil Refinery and the Karayev Baku Oil Refinery.

In light of the decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Effect of the Economic Mechanism on Improving the Efficiency of Production and Quality of Work," the ministry has defined a program of measures for the sector for the near future. They include such important work as the transition to planning capital construction for commercial products, which will improve the responsibility of the construction organizations for the results of work, the certification of all enterprises which will reveal the "tight places" and reserves of each enterprise, and planning of the necessary measures to eliminate the available shortcomings and activate the latent production reserves.

An experiment has been carried out at the ministry enterprises to switch to using the indicator of standard-pure product and the standard of wages per ruble of product.

The tasks that the oil refiners need to solve now and in the near future are grandiose: almost complete updating of the active production fund, creation of a production base which corresponds in technical and economic indicators to the level of the leading domestic enterprises.

Inspired with the great program for social and economic development of the country and the republic outlined by the decisions of the 26th CPSU Congress and the 30th Azerbaijan Communist Party Congress, the republic oil refiners, true to their labor traditions, will apply all their efforts to fulfilling the tasks set for them.

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FUELS

BELORUSSIAN PEAT HAS MANY POSSIBLE USES, IS TOO VALUABLE TO BE BURNED

Minsk KOMMUNIST BELORUSSII in Russian No 5, 1981 pp 80-87

[Article by V. Khomyanovskiy: "Peat: The Reserves Are Not Endless"]

[Text] Until reserves of petroleum, silvanite, coal, shale and iron ore were discovered within our republic, it was traditionally considered that the main, if not the sole natural wealth of Belorussia, was peat. But, indeed, it is no longer considered such.

Meanwhile, it turns out that it must be husbanded, and very meticulously, since the notion about the inexhaustibility of the "peat cup" is, to put it mildly, somewhat overblown. Suffice it to say that a sixth of the total reserves of Belorussian peat have already been won. When one computes the share of the peat that can still be won and used, it turns out to be not much more than what has already been put to use. As a result, if peat digging is kept at the existing magnitude, what we have will not last long. Therefore, these lines from "The Main Directions for the Economic and Social Development of the USSR During the 11th Five-Year Plan and During the Period up to 1990"--"Greatly reduce the use of peat as a fuel for thermal electric-power stations"--will apply primarily to our republic, which digs a fifth of the country's peat.

Meanwhile, peat is still being burned. It burns not only in the furnaces of electric-power stations and heat centrals but also in the boilers and furnaces of housing. Incidentally, it is not only being burned, some of it is being used as fertilizer. In either case, only one of the properties of the peat is used: the capability to burn or to increase soil fertility.

But peat has dozens of characteristics, many of them unique and left unused. The requirements of the "Main Directions" relative to peat are more than correct: "Assimilate deposits of useful minerals in a more integrated fashion, not allowing them to be lost during extraction or processing."

Belorussian scientists long ago proved that the traditional methods of using peat are not effective, that more rational uses can and should be found for it. Much research by the AN BSSR [Belorussian SSR Academy of Sciences] Peat Institute substantiated convincingly the desirability of creating a special branch of industry, which will produce a number of new materials from peat, and it defined the areas of use of the products obtained from this gift of nature.

This has been a general presentation of the question. And now we shall speak about the particulars, which undoubtedly are not known to many. About, for example, what new products are made from peat, and what potential they have.

Thus the first product is wax. We are speaking not about natural wax, but about an artificial analog of it. To producers it is known under the name "montan wax" (or mineral wax). Ordinarily it is obtained from certain grades of brown coal, being produced in only two countries of the world--the GDR and the Soviet Union. Peat wax, which is produced only in the Soviet Union, and only in Belorussia, is now included in the national economy's turnover, albeit still in small amounts.

Let us take just two of the more important areas of use of raw peat wax. The precision lost-wax process is finding increasingly wide use in modern casting. It has received special dissemination in the aviation and automotive industries, particularly at the Minsk Motor-Vehicle Plant. When peat wax is included in the patterning compound, it becomes possible to dispense with two previously used components--stearin and imported montan wax. Moreover, use of the new composition improves appreciably the purity of the surface of the part being cast.

The second area of use is connected with basically new technology. There is a synthetic material--polyurethane foam (PPU). It can be poured into a mold, and it can be almost solid and soft. In brief, this is an interesting modern material with no small potential, which is finding increasingly wide application.

But PPU has one drawback: improbable adhesion to any surface during the hardening process. In order to obtain an article made of PPU, special lubricants are required. Our country is still using mainly imported lubricants which contain, on the specialists' recommendations, natural wax. Belorussian scientists have created several types of their own lubricants and arranged for their output at an experimental installation. They are already being used by the motor-vehicle makers of Tol'yatti and Izhevsk, and increasingly strong contacts are being established with other enterprises.

But raw wax can be processed still further. Let's say, if resins are removed from it, then valuable raw material for producing printers' foil is obtained. The inscription on the cover of the new Soviet passport is made from it, for example. If the product obtained is subjected to further upgrading, a colorless refined wax is obtained--raw material for household chemicals and perfumery, replacing natural wax and other products of vegetable and animal origin.

As a result of all these transformations of raw wax, a residue remains--resins. But the concept of Peat Institute scientists is that all products of refining must be used. The resins can, first, be used for gluing particleboard, and this technology has been proved successful at Vitebsk. Second, the resins contain physiologically active substances. Beta-sitosterol, a medicinal preparation, has been isolated at a special installation. Ointment manufactured on a base of it has proved to be an extremely effective means for treating burns and a number of complicated skin diseases. This was proved convincingly by clinical tests that were conducted, particularly at the Minsk Institute for the Advancement of Physicians and at medical institutions in Moscow and Khar'kov.

But the institute's scientists could not, obviously, be reconciled to the fact that, with all the importance of the wax and the products made from it, the remaining peat (about 95 percent of the total weight) nevertheless is transformed into briquettes and burned. They found a use even for this residue.

The first products of waxfree peat were special reactants for drilling (right now tens of thousands of tons of food starch are used in the country for these purposes). The method for obtaining it, which was proposed by Minsk chemists, has proved to be much simpler and cheaper than the technology for obtaining a similar product from brown coal. And when this reactant was tested as a thinning agent in the cement industry, it proved to be so effective that the cementmakers expressed a readiness to take tens of thousands of tons of it.

Moreover, the institute also developed and erected a large laboratory installation for obtaining foam plastic filler from waxfree peat. On that basis, a large batch of molding powder was made up. Unlike the wood meal usually used, the new filler absorbs less moisture and has better dielectric and antibacterial properties.

Finally, the possibility for transforming this peat into higher quality activated carbon, which, moreover, would be cheaper than the best grades of charcoal, has been proved practically in practice.

In brief, scientists have proved theoretically, and, what is more important, practically, that bituminous peat (from which wax is extracted) can be used whole, without residue, with enormous benefit for the national economy.

Granted, the scientists' recommendations are to some extent partial, but already they have "put on flesh." The world's only plant that produces peat wax and products made from it is operating in Svisloch' settlement of Pukhovichskiy Rayon. About 30 million rubles have been allocated to rebuilding this enterprise during this five-year plan.

But still the bases for an optimistic outlook for the fate of the peat storehouses is still small. We shall try to explain why.

Bituminous peat reserves are not great in comparison with total peat reserves. What to do with the rest of it: burn it as before? No, since there are still other possibilities for its integrated use.

There exists, for example, the so-called highmoor peat, with a low degree of decomposition (there is about 10 times as much of this kind as of bituminous peat). The traditional method of use is bedding in livestock premises. But only a third of the existing reserves of it are used rationally for these purposes. The rest, as Academician I. I. Lishtvan, director of the AN BSSR's Peat Institute confirms, must be used in livestock production, as a feed component. In the first place, it can be fermented and ensiled, together with biomass, to obtain a biologically active feed. In the second, it can be transformed, after an uncomplicated processing, into so-called sugared peat. It has already been tested as a carbohydrate supplement to a ration for young livestock at a number of farms, particularly at the Kolkhoz imeni Uritskiy of Gomel'skiy Rayon. The results were very good.

But there is a third and more promising method--the hydrolysis of peat. It has been mastered and tested, but it still has not been introduced. Is it advantageous to introduce it? In order to answer this question, let us turn to the facts and figures.

Not only the basis but also the intricacies of it were tested at an industrial-test installation (which operated at the Bobruysk Hydrolysis Plant), and the process was perfected. Here are the results: 200 kilograms of nutrient yeast, which absolutely is not carcinogenic, were obtained from a ton of dry peat. The prime cost of the new product is on a par with yeast obtained from wood. It is estimated that an industrial enterprise that produces 50,000 tons of nutrient yeast per year from peat can yield 20 million rubles of benefit to the national economy.

What's more, the scientists have tested the addition of peat hydrolyzate to wood hydrolyzate. As a result, the intensity of the hydrolysis process increased, and the output of feed protein was increased. Calculations enable a second generalizing figure to be named: the use of peat hydrolyzate to stimulate the growth of yeast made from wood raw material will yield an economic benefit of 10 million rubles at a plant with a capacity of 60,000 tons of output per year.

And that is not all. About 30 percent of the overall weight of the peat processed into yeast makes up the so-called postyeast mash. It is, in its own right, a good feed for livestock. The remaining 50 percent is a so-called unhydrolyzable residue, which goes onto the dump at all plants, regardless of the original raw material. It is difficult to burn because of the high moisture content, and costs for drying it are such that the game is not worth the candle.

Scientists have found two ways to use this residue. The first is the manufacture of those same activated carbons from it. The second is the production of highly effective compound fertilizers. This second road requires a somewhat more detailed explanation. Scientists have proposed an original and effective method for using the residue: after preliminary processing, they make granules from it, adding a complex of mineral fertilizers. The granule consists of one-third unhydrolyzable residue, two-thirds mineral fertilizer. Such granules have already been manufactured at a test facility.

Does the benefit obtained justify the expenses of making the granules. It certainly does! Our republic's soils are, for the most part, light. A drenching rain comes and much of the mineral fertilizer turns up in rivers and lakes. With granulation of peat-processing products, the fertilizer's utilization coefficient rises 30-40 percent. But the granule not only retards leaching. It is also an unusual "storehouse," which "passes out" the plant fertilizer as needed, acting as such in the soil for more than a year.

The use of such granules at a Peat Institute experimental station led to an appreciable growth in the harvest. In any case, specialists confirm that use of the granules can increase the yield of grain by 3-5 quintals, of potatoes by 25-30 quintals per hectare.

The scientists have gone farther. Working under a program of the Scientific Council on Preservation of the Environment of the Soligorsk industrial region, they, in collaboration with the Belorussian Branch of the All-Union Scientific-Research Institute for Halurgy, found a method for preparing the granules by using salt-clay sludges, of which several millions of tons have been accumulated. Up to half of these granules is sludge, up to 30 percent is peat, and the remainder comprises nitrous and phosphoric additives.

The new fertilizers were tested at both the Peat Institute and the Belorussian Scientific-Research Institute for Pedology and Agrochemistry. It turned out that the average harvest increment over years of testing was 1-2 quintals per hectare for grain crops, 16 for potatoes, and 40 for sugar beets.

"Each ton of granules with mineral fertilizer yields an average of 122 rubles of economic benefit," confirms Academician I. I. Lishtvan. "This means that a department of 20,000 tons of capacity will bring 2½ million rubles of national-economic return per year, and the expenditures on its construction will be one-half as great."

And now a third generalizing figure, named by Peat Institute specialists. If, instead of peat crumb, granules made of unhydrolyzable residue and mineral fertilizer are put into the soil, yielding an even greater benefit to agriculture, more than 10 million tons of standard peat equivalent, almost half of the amount used today for fertilizer, can be saved.

There is also a method of using highmoor peat for the needs of industry. Excellent dyes for wood and particleboard are obtained from it. Usually, domestic or imported aniline dyes, the so-called "tonaksils," are used for this purpose. The dyes made from peat not only are absorbed more deeply and show off the wood's texture better, but they are much more advantageous economically.

And so, the extraction from peat of wax and of the products that accompany it, the use of peat to obtain additional amounts of nutrient yeast and wood dyes, and the transformation of waste residue into nutritious granules promise tens of millions of rubles in savings and can prolong the life of the peat reserves. Why is this potential being used far from completely?

The fact is that the scientists, strange as it may be, cite precisely the complexity of the approach to the matter. They should introduce all this gradually, in sequence, but they want to solve the problem, as is said, with one blow, so that there will be no waste of any kind. The institute's specialists have identified the deposits that are suitable for integrated use and have posed the question about building an industrial combine at one of them. The deposits they have chosen are a singular "layer cake." On top lies peat with a low degree of composition, suitable for hydrolysis and later processing into granules. The second layer contains peat with a high degree of decomposition, and it has that percent of bitumen that is suitable for extracting wax therefrom and obtaining all the products that accompany it. The lowest layer is suitable for producing activated carbon and can be used, as previously, for fertilizer.

The proposal about building an industrial test production facility in Belorussia for the integrated processing of peat, based upon a wastefree technology, came to the appropriate republic organs at the start of the 1970's. It was to have produced a number of the products named above. Therefore, in considering the "layered" nature of the deposit, it was proposed to build the combine's departments and to put them into operation on a gradual basis. First the deposits that produce products of hydrolysis, then the wax and everything connected therewith, and finally the activated carbon.

The proposal was transmitted to one of the sections of Belorussian SSR Gosplan. And there they came to the conclusion that the republic does not require activated carbon in the proposed quantities and that its production is an All-Union problem, so let the All-Union ministries worry about these products. But the feed protein and the granules are needed, so they must be produced. As a result, a "truncated" feasibility study for the construction of a plant for producing just nutrient yeast and granules made of nonhydrolyzable residue and mineral fertilizer was worked out. However, even this variant got no farther than paper. The idea of integrated wastefree processing of peat disappeared into thin air.

This occurred most likely because of the parochial approach to the matter, which still persists at times. As a result, the development even of the agreed-on production of a small number of valuable products made of peat was slowed.

But now in 1982, as a result of plant reconstruction that is going on at Svisloch' settlement, 600 tons of wax should be produced. However, though it has a capacity of 200 tons, the plant right now yields only 120, having been put in a difficult position by some of the country's major machinebuilding plants. This happened because Belorussian SSR Ministry of Fuel Industry decided suddenly to reduce the digging of lump peat from which wax is extracted. Only after the intervention of a number of Union ministries was its digging at one deposit, located 150 kilometers from Svisloch', renewed. And the plant, having at its disposal only a fifth of the loading machines, has not been in a position to charge its installations to full capacity.

In order to provide raw material for the plant being rebuilt, the Orekhovo moss deposit, which is not far from the plant, in Pukhovichskiy Rayon, must be put into operation. However, Mintopprom [Ministry of Fuel Industry] has for several years put off solution of this question under various pretexts. As a result, the next year the new capacity for producing wax, reactants and plastic filler had to lie idle. And are not all 30 million rubles of the capital investment that had been allocated for rebuilding the enterprise suffering the same fate, through Mintopprom's fault--lying like a dead weight? Indeed, in 1984, the second phase of the plant, which is to make 1,000 tons of lubricant and 2,500 tons of patterning compound for casting, should go into operation, and in 1985 a third phase, which is to produce modified waxes, and, at the start of the 12th Five-Year Plan, a fourth line, where small-tonnage products for household chemicals will be manufactured. Meanwhile, it is not known even approximately when the Orekhovo moss deposit will be able to furnish raw material for the plant.

"Of all the reserves of the deposits for making wax, about 10 percent can be processed," confirms Belorussian SSR Ministry of Fuel Industry G. A. Filippov. "And what are we to do with the remaining peat?"

Indeed the question is posed about the integrated processing of all the peat, without any waste at all. The ministry stubbornly does not believe in the scientists' development. They say, just let them show, even in the test tube, that peat can be processed without waste. Meanwhile, as has already been said, the proposed technology left laboratory walls long ago.

However, the policy of Belorussian SSR Mintopprom and its managers, although they are impeding the business, fortunately has not been defined. The republic's government has charged AN BSSR and, incidentally, that same Mintopprom, with developing a feasibility study and with introducing proposals to organize in the republic low-waste processing of peat, with a view to obtaining new types of products by biochemical and thermochemical synthesis. Posing the question this way corresponds completely with the requirements advanced in the Resolution of the 29th Congress of the Belorussian Communist Party, in accordance with the accountability report of the KPB [Communist Party of Belorussia]: "On the basis of special integrated programs, insure the successful realization of regional scientific, technical and economical tasks connected with the assimilation of Poles'ye, the mining of the potash salts of the Starobin deposit, the production and processing of flax and potatoes, and the rational use of peat." The work of the Peat Institute's scientists has the most direct connection with each of these programs.

Analysis indicates that with the traditional use of 470,000 tons of peat as fuel (the same amount that the proposed production facility should process), the gross output per year is 1.4 million rubles. But with the integrated use of the same amount of peat, just five of the basic types of output (nutrient yeast, sugared peat, wax, sorbents and granulated fertilizer) can yield 26.8 million rubles; in other words, output volume will grow 19-fold. There remains, it is true, the danger that, in a situation wherein one agency develops the technology, another wins the peat, and a third processes it, the influence of the tendency that has already hampered the fate of the Belorussian peat will remain. What is to be done? The resolution of the 29th KPB Congress suggests the answer: "Introduce progressive forms of integration of science and production, improve the work of science and production associations, and, where necessary, create new associations, and strengthen the material and experimental production base of science."

By its nature the proposed production activity is interindustry, and an attempt to subordinate it to one agency or another inevitably will provoke a collision of interests and an establishment of priorities for types of products that are suitable for that agency. In order to avoid this, it is desirable, obviously, that the same route that was employed for creating the Science and Production Association for Powder Metallurgy be used.

It would seem that all the prerequisites exist right now for the creation of an NPO [science and production association] for products made of peat. We have at our disposal an academic institute for peat that is unique in the world, which could become the prime organization, and its experimental base--Dukora, and at Svisloch' settlement the plant that will produce peat wax and the whole range of products that accompany it is growing and is being expanded. In order to create a full-fledged association that would carry out the whole cycle of operations--from the scientific research and development of the technology to the winning of the peat and the integrated industrial processing thereof, it is necessary to build the proposed plant, and also to transfer to the new NPO definite deposits and machinery for winning the raw material. As for the required funds, then also here, obviously, the path that was proved out at one time at the Scientific-Research Institute of Power Metallurgy can be used. This was the acquisition of the funds from the ministries interested in the new product, their shared participation in financing construction of the plant, and the buildup of facilities for the fields. These interested ministries are numerous.

Aside from the advantages of the moment,aside from the potential for using the republic's natural wealth more rationally, there is still one promising consideration to which attention also should be given, in the interest of the economy of the country as a whole. The fact is that 40 percent of the world's peat reserves, which are basically suitable for the integrated processing of highmoor peat, are concentrated in West Siberia. Inevitably the time will come when we will have to turn to these reserves. And so it is that everything starts from zero? At the same time, the presence in Belorussia of a high-capacity science and production association will enable us to have a singular large national economic laboratory, where it will be possible to refine the technology, the equipment and the economics of peat production, and, finally, to train the required personnel.

The next question remains: what is to be done with the requirement of the "Main Directions" that the burning of peat be reduced?

"It has been said by everyone and at all levels, that it is sinful to burn peat," muses G. A. Filippov. "And I will affirm: do not burn it, but if you do burn it, burn it with your mind."

What does the statement, "Burn it with the mind," mean?

"Every cup has a bottom," continues the minister. "The peat 'cup,' is no exception in this regard, but it is possible to reach the bottom more slowly. Right now we are producing annually about 2 million tons of fuel briquettes, for which 5 million tons of peat are processed. The briquettes are burned in home furnaces, which have an efficiency of 7-12 percent. If, instead of a furnace in each home, especially in the countryside, you provide centralized heating systems, then the effectiveness of burning briquettes grows substantially. However, it is not clear who will make these systems."

But the briquettes are only one aspect of the problem. Power engineering is still another large consumer of peat fuel. Here also achievement of the greatest effectiveness also comes up against the departmental approach.

The power engineers get peat whose moisture content averages 50 percent. When it is considered that the delivery of peat to electric-power stations and to heat centrals comprises about 40 percent of the local rail hauling, then it is clear that 20 percent of what is hauled is made up of water, which then escapes into the atmosphere. As a result only 300 kilograms of dry substance out of each ton of peat "works" to generate electricity. The other 200 kilograms are consumed in vaporizing half a ton of water. If peat is dried to 40-percent moisture, then 420 kilograms of each ton will "work" to generate electricity. This is advantageous for the power enginers, but for Mintopprom it is not. But, in so doing, no one is thinking about the possibility of releasing a large number of railroad cars.

It will be possible in the not so distant future, of course, if not to eliminate completely, then at least to cut in half, the republic's requirement for peat as a fuel. Belorussia's existing brown-coal reserves of industrial significance have been explored and confirmed, and Union authorities have also approved the feasibility study for the construction of an open pit with a capacity of up to 2 million tons of coal per year. But the business of this document still has not come to pass, although specialists have already carried out the necessary industrial tests, which indicate the suitability of Belorussian brown coal for use as municipal, housing and power-engineering fuel.

The republic also has reserves of fuel shale, which prognostic assessments calculate in the billions of tons. The specialists consider that the principle of using it to obtain liquid and gaseous fuel can be employed, but this will become economically suitable, possibly only at the threshold of the 21st century. But indeed this goal no longer is so far off. It was expressed this way at the 26th CPSU

Congress: "Today, in glancing ahead for 5 years, and for 10 years, we cannot forget that it is during these years that the national economic structure with which the country will enter the 21st century will be laid." Therefore, in the remaining time, methods for mining and the technology for processing shale and for ways of utilizing it, particularly in building materials, and for processing the waste, of which there will be no small amount, must be refined.

But with all this, it cannot be forgotten that the problem of more rational use of peat must be solved today, right now.

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FUELS

NEW COAL DEPOSITS SOUGHT

Frunze SOVETSKAYA KIRGIZIYA in Russian 24 May 81 p 2

[Article by N. Pogrebnov, director of the All-Union Scientific Research Institute of Geology and Exploration of Coal Fields, doctor of geological-mineralogical sciences: "Coal for Tomorrow"]

[Text] Coal currently comprises 25% of the fuel and energy balance of the country. There are all the grounds to assume that it will rise in the future. In the near future, coal extraction in the Ekibastuz region will reach 150 million tons, while the open-pit mines of the Kansk-Achinsk basin with time will begin to yield up to a half billion, and then a whole billion tons of fuel per year. (In 1980 716 million tons of coal were extracted).

At the same time the geologists are beginning detailed exploration of even larger fields. In one of them alone, the Lenskiy, there are several trillion tons of coal according to the hypotheses of the scientists. The Tungusskiy basin which covers an area of a million square kilometers holds enormous fuel reserves. There is coking coal at Taymyr. The scientists of the All-Union Scientific Research Institute of Geology and Exploration of Coal Fields made an assessment of these and many other fields.

Today all the scientific developments of the institute are aimed at significant expansion of the coal-raw material base which remains to be developed in the next 10 years. In the European sector of the country, the attention of the geologists will be drawn to two of the largest coal basins, the Donetsk and Pechora. It would seem that there is no point in studying the Donetsk basin which has been in operation for over a century. However, there are many unresolved problems even here.

The scientists are making greater use of the data of space research. Our institute has set up a special laboratory to process the results of space photographs to predict new coal fields. These photographs rendered invaluable assistance to the scientists who were compiling maps to predict the coal content of the Turgay depression in northwest Kazakhstan, and in particular, the fairly large Orlov field.

Specialists recently returned from the Krasnoyarskiy kray. They studied the Kansk-Achinsk basin coal resources which are valuable raw material for gasoline production. Construction is being completed in Siberia of the world's first power production unit which is capable of annually producing from coal about 300,000 tons of semicoke, 120 million cubic meters of gas, a thousand tons of gasoline and other valuable products. The success of this industrial experiment, and the scientists are confident of this, will induce the rapid development of the new sector of industry. Even now we are working to reliably supply it with high-quality raw material. Besides the Kansk-Achinsk, this raw material is found in the neighboring Kuznetsk basin. Liquid fuel can be obtained from shales as well. A study is currently underway of new fields of this raw material.

A calculation of the coal reserves was made for the first time in our country in 1937. We then had only 150 million tons.

We are now making a scientific study of the resources in the southern Tungusskiy basin which for the most part is located in the South Siberia coal industrial complex which includes the Kuznetsk, Kansk-Achinsk, South Yakutsk, Ulukhemskiy and Minusinsk basins. These fields alone contain many billions of tons of fuel.

Starting in 1981, we have started new work together with our colleagues from Poland, Bulgaria, Czechoslovakia, the GDR, Yugoslavia, Vietnam and Mongolia: geological-industrial assessment of the coal fields of the member countries of the CEMA.

The entire world is concerned with today's fuel and energy problems. In this respect UNESCO is making a so-called correlation of coal formations (CCF) program).

The USSR Ministry of Geology has entrusted our institute with forming a group jointly with the USSR Academy of Sciences to work on this UNESCO program. Realization of the CCF program will help us to negotiate with foreign colleagues on single criteria, qualitative and quantitative, for an evaluation of coal reserves.

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NEFTYANYYE KAMNI-APSHERON UNDERWATER OIL PIPELINE BEGINS OPERATION

Baku VYSHKA in Russian 8 Jul 81 p 2

[Article by A. Gol'denberg, correspondent of Azerinform: "Neftyanyye Kamni-Apsheron: Pipeline in Operation"]

[Text] The fuel metering point which was installed in the tank farm of the bulk oil port in Dyubendy issued the first data on the liquid fuel that began to come from Neftyanyye Kamni to Bol'shaya Zemlya. The automatic unit that was made in Hungary recorded the pressure, density, total volume of fuel and a number of other data on the oil which was supplied for the first time from the pile-supported field on the Apsheron Peninsula not by tankers, as until now, but on the 75-kilometer pipeline.

The offshore builders laid the country's largest underwater oil pipeline 3 months ahead of schedule. This is the result of selfless labor of the collectives of three trusts and six construction-installation administrations whose powerful forces were concentrated on the route.

The sea, which is stormy about 300 days a year, placed one obstacle after another before the people. But persistence, experience accumulated in over 30 years of working in the Caspian, and the latest equipment helped the offshore field engineers to emerge victorious in the clash with the elements. They had an especially difficult time on the section between Neftyanyye Kamni and Zhiloy Island which has been called "drunken alley" not by accident. A strong underwater current, squall winds, and complex bottom relief cut by craters and rocky ridges complicated the actions of the builders and forced them to find ways out of the most unbelievable situations and to solve tasks of the highest degree of difficulty. The workers of the trusts "Kaspmorneftegazstroy," "Azmorneftestroy" and "Ksapmorremstroy" solved them.

The specialized pipelaying ship "Suleyman Vezirov" helped to place all the work on industrial rails. A conveyer was set up on board this unusual ship where the pipes were welded into lines, x-rayed, insulated and lowered to the bottom. This process was continuous and permitted the leading brigades of Ivan Gazaryan and Islam Gasanov to accelerate the work 3-fold as compared to the conventional methods of laying such lines.

Before the pipes reached the ship, they were tested for strength on a special test stand that was installed on the shore. Then the Zykh plant of reinforced concrete items painted them and put them in a concrete casing which was used as ballast to facilitate submersion of the steel lengths into the sea.

The brigade of installers of Viktor Dubinin was entrusted with welding the last junction of the offshore part of the pipeline that emerged onto the mainland in the region of the Shakhoviy sand bar. This brigade has faultlessly completed the most complicated operations in the construction of the underwater line.

The installers of Rashid Balabekov, the welders of Aleksandr Volkov and other leading collectives worked intensively on the land. Their initiative and efficient work helped the builders to save the state hundreds of thousands of rubles.

The new underwater main will guarantee continuous operation of the pile-supported fields at Neftyanyye Kamni, will free the tankers who deliver the fuel to the mainland for other shipping, and will completely eliminate losses of oil in transport.

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FUELS

BRIEFS

LAGGING ASSOCIATIONS--Production association "Sevkuzbassugol'." This year, eight out of 15 enterprises in the association (general director V. Stankus)have not coped with the plan. The total debt numbers 540,000 tons of coal and continues to rise. The Volkov, "Sibirskaya," and "Tayezhnaya" mines are operating unstably. They are responsible for over one-third of the total indebtedness. Their work is affected by a common misfortune: lagging in the preparation of the stoping front, shortage of new longwalls and levels, and inefficient organization of work. Although there are not enough tunnelers in the mines, they are often diverted to auxiliary operations. This year, these "diversions" took up over one-third of the working time. The extraction collectives make poor use of the labor reserves and do not load the equipment completely. High accident rate, violations of the labor and production discipline and deterioration in the quality of fuel led to a decline in the technical and economic indicators of once leading enterprises. Personnel turnover rose sharply. The coal workers have poor housing and social and cultural facilities. The plan for residential construction has been fulfilled by 50-70% in recent years. The association is not experiencing a shortage of the various verification classes of the USSR Ministry of the Coal Industry. It is not given specific business help although it is very necessary. The "Yarneftekhimstroy" trust. The country's most powerful combined unit "KN" is being built at the Yaroslavskiy oil refinery. The unit is rated for annual output of 100,000 tons of high quality engine oils. It can replace in output eight units that are currently used at similar enterprises. Start-up of the "KN" was planned for next year. However, judging from the rates of work, this will hardly be possible. The general contracting trust "Yarneftekhimstroy" of the USSR Ministry of Construction (manager A. Kriklivyy) is clearly not hurrying to provide work for the subconctractors. Almost 1.5 years have already passed since the beginning of construction, and less than 2 of the 22 million rubles of total construction cost have been assimilated. The assignments of this year are not being fulfilled either in volumes or nature. Until now neither the work sites nor the approach roads have been put into order. The heads of Glavverkhnevolzhskstroy under whose subordination this trust is, approved the system schedule. It states that in 1981 equipment of 504 substructures must be installed. Actually only one-seventh had been done by the end of 6 months. As a result, not a single installation organization can begin work, although the customer has already fallen behind in equipment. The main step-down substation is of special concern. Its installation, according to estimates of the specialists, requires 1.5-2 years, while the trust has not yet even begun to build it. The impression is created that the fate of the important construction site is of no concern either to the general contractor or the main territorial administration which is represented in Verkhnaya Volga by the USSR Ministry of Construction. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 16 Jun 81 p 3] 9035

RURAL GAS SUPPLY--Yevlakh--Yevlakh, Agdash, Udzhary, Zardob, Belokany, Zakataly, Kelbadzhary, Tauz, and Kedabek--this is far from a full list of the regions whose residents enjoy the services of the Yevlakh gas-filling station of the production association for production and the sale of compressed gas "Azerglavgaz" under the republic council of ministers. The station workers provide gas cylinders to over 22 regions of the republic, including the most distant mountain villages of Azerbaijan. In recent years ths service zone of the station has significantly expanded. The volume of gas sales here has also increased. In only 5 months of this year, about 6,000 tons of compressed gas have been sold here, or almost a thousand tons more as compared to the corresponding period of last year. The station workers have been working intensively since the first days of the second half of the year. Workers Mokhobbat Mamedov, Saguba Ismaylova, Nana Mamedova, Garagez Samedova, Akhmed Mamedov and many others are fulfilling their daily assignments, generally by 115-120%. At the same time, the station workers are helping the cooking needs of the kolkhozes and schools. [By N. Ismailov] [Text] [Baku VYSHKA in Russian 7 Jul 81 p 2] 9035

LOOSENING OIL BEDS--Intensified oil extraction is attained in the oil industry also by forming highly permeable channels, cracks, caverns, etc. in the oil bed critical zone. These channels are filled with special material. The scientists of the Azerbaijan State Scientific Research and Planning Institute of the Oil Industry (AzNIPIneft') have developed a new method for loosening the oil bed. They use granulated zeolite or dispersed faience as the permeable material. The new method drastically increases the throughput of the critical zone, especially in the extraction of viscous oils. [Text] [Baku VYSHKA in Russian 28 Jun 81 p 2] 9035

NEW GAS FIELD--Noril'sk--22 June--A gas field has been found 300 kilometers to the northwest of Noril'sk on the right bank of the Yenisey. It was discovered by the prospectors of the Nizhne-Yenisey geological expedition. Drilling of well No 1 on the Khobeyskiy area from a depth of 2,042-2,046 meters produced a gas gusher with output of over 1.5 million cubic meters of gas per day. [By outside correspondent of PRAVDA A. Dzyura] [Text] [Moscow PRAVDA in Russian 23 Jun 81 p 1] 9035

UNDERGROUND TELESCOPE--Donetsk--The miners of the"Sotsialisticheskiy Donbass" Mine have a unique innovation in their arsenal, an underground telescope. It will inform the dispatcher who is on the surface about the site and condition of the mining equipment in the stoping and preparatory faces. The first sets of the mining remote control system have been manufactured at the Donetsk experimental plant of the institute "Giprougleavtomatizatsiya." In the near future they will be used by the miners of the Zasyad'ko Mine, 60th Anniversay of the Soviet Ukraine Mine and other coal enterprises. [By G. Dorofeyev, in-house correspondent] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 Jun 81 p 2] 9035

WELL RESTORATION--Ali Bayramly--The brigade of Guleyman Azizov was one of the first in the shop of major and underground repair of wells of the NGDU [Oil and Gas Extracting Administration] "Shirvanneft'" to report the fulfillment of the 7-month plan. It has seven restored wells to its account. Four of them were repaired on an accelerated schedule. The collectives of the brigades headed by foremen Elimkhan Abyshev, Amir Iskenderov, Sarkhad Radzhabov and Elbegi Veliyev achieved the same success. Thanks to the intensive work of the repairmen, 230 wells acquired a second life. [By S. Garayev] [Text] [Baku VYSHKA in Russian 7 Jul 81 p 2] 9035

GAS PUMPS--Sumy--An experimental model of a large-output gas-pumping unit with aviation drive has been made in the M. V. Frunze Sumy Machine Construction Production Association. This machine is capable of pumping over 30 million cubic meters of fuel per day. The main advantage of the units manufactured here is the high level of plant readiness. This allows the installers at the construction site to assemble the equipment rapidly and put it into operation. The designers decided to use aviation engines as the "muscles" for the gas pipelines. They did not err: the unit is light and compact, and all of its assemblies fit into a special car. The Sumy machine builders have set up series manufacture of the gas-pumping stations. They have been given the Sign of Quality. A special shop equipped with modern equipment has been built to produce this equipment. Now an even more powerful unit is ready to come off the conveyer. It is 3-fold more productive than those manufactured. The main gas pipelines Nizhnyaya Tura-Perm'-Gor'kiy-Orenburg-Kuybyshev, Central Asia-central region, as well as certain routes in Belorussia, Georgia and Uzbekistan have been equipped with the Sumy gas-pumping stations. The use of these stations accelerated the construction of compressor units 3-fold. The total economic effect is almost 2 million rubles. [Text] [Moscow IZVESTIYA in Russian 14 Jun 81 p 1] 9035

PIPELINE COST REDUCTION--The cost of building the gas pipeline Yamburg-central region which remains to be laid from one of the major fields of the Tyumen' north will be reduced by 20 million rubles. The thousand-kilometer route from Yamburg to the Ob' was selected by the specialists of the I. M. Gubkin Moscow Institute of the Petrochemical and Gas Industry and the Donetsk institute "YuzhgiproNIIgaz" with the use of a mathematical model of the natural conditions of the Arctic with extensive use of computer equipment. What is the essence of the new method which has such high effectiveness? "First of all," says the head of the problem of automating the designing of main pipelines, Professor of the Moscow Institute of the Petrochemical and Gas Industry P. Borodavkin, "the level of capital expenditures is determined by selection of the optimal route version. The cost of 1 kilometer of pipeline 1,400 millimeters in diameter fluctuates in limits of 400,000 to a million rubles." The traditional technology of designing provides for the development of two-three, less often four route versions. This is usually done "manually" with the help of large-scale maps. On its route the pipeline intersects many natural and artificial obstacles: rivers, ravines, lakes, railroads and highways; it passes over swamps, mountains, permafrost ground, makes loops, by-passing pastures, settlements and cities. Even superexperienced specialists are not able to scrupulously take into consideration the effect of all these factors. Only qualitatively new planning procedures can help here. The basis for the system of optimal planning of oil and gas pipelines is a mathematical model of the natural conditions in the territory where everything that influences the economics of route construction is carefully coded. Special machines, graph plotters which operate in direct contact with the computer are used to make the drawings. Just how effective this method is has been shown by the laying of the gas pipelines Cherepovets-Leningrad, Torzhok-Minsk-Ivatsevichi, Medvezh'ye-central region, and others. The Committee on Science and Technology of the USSR Academy of Sciences, and the USSR Gosplan have adopted a complex target program for automation of planning which is designed for 1981-1985. [By Ya. Il'in] [Text] [Moscow IZVESTIYA in Russian 3 Jun 81 p 2] 9035

CSO: 1822/193

INTERPLAY OF PERSONNEL, HOUSING SHORTAGES PLAGUES KANSK-ACHINSK COMPLEX

Moscow PRAVDA in Russian 30 May 81 p 2

[Article by V. Prokushev (Krasnoyarsk): "Through the 'Sunstone' Prism"]

> [Text] "Continue to form the Kansk-Achinsk Regional Production Complex. Put into operation the first phases of Berezovka Strip Coal Mine No 1 and the Krasnoyarsk Heavy Excavator Plant and capacity at Berezovskaya GRES No 1." (From "The Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990.")

Spring has come early these days to this northern tip of the Khakas steppe. The sun has warmed up the icy armor on the lakes, and the trees are covered with young leaves. It is as if everything in nature had come to life all at once at the construction project near the village of Sharypovo. Komsomol-Youth Detachment imeni 26 s"yezda KPSS arrived here recently. It was met with ceremony, and the next day the young men and women went to their workplaces.

The scale of construction is great. Berezovskaya GRES No 1--the first of eight planned--will be equal in capacity to the Sayano-Shushenskaya Hydroelectric-Power Station--6.4 million kilowatts. If it is considered that the thermal power station is not vulnerable to nature's caprices--fluctuations in reservoir water level, then it will generate as much electricity as the Krasnoyarskaya and Sayano-Shushenskaya hydroelectric-power stations combined.

Berezovskaya Strip Mine No 1, with a capacity of 55 million tons of coal per year, will become one of the world's largest. New types of superpowerful mining equipment will be required to excavate it. The Krasnoyarsk Heavy Excavator Plant will provide it.

These are the three first-born of the complex. The 26th CPSU Congress set the task: introduce capacity at them during the 11th Five-Year Plan. The tasks of the individual ministries for creating the Kansk-Achinsk fuel and power complex and the amounts of financing and the deadline for introducing the jobs have been defined. The power station's first power unit should produce current in 1983, and the first phase of the strip mine must be turned over for operation in 1984.

The excavator plant was started last, but it is the most advanced of them all. One huge department is almost ready now for the assembly of equipment, and another is being erected rapidly. The operators have decided not to wait for the introduction of the main departments but to produce the first three excavators--not in 1984, as had been planned, but in 1982.

Matters are proceeding in a more complicated fashion at the two other facilities due for startup. At the GRES site the builders have only started to make the footing under the smokestack. In order to stay within the deadline, more than 150 million rubles must be assimilated annually. But this year the power-engineering construction workers can manage only about 40 million rubles' worth. The program at KATEKuglestroy [Combine for Coal-Mine Construction at the Kansk-Achinsk Regional Power-Engineering Complex] is just about as strenuous. It was planned that 25 million rubles of investment would be assimilated this year. Yet many questions about the manufacture and delivery of equipment and machinery have not been decided, and the network of railroads and roads is being developed poorly. If matters continue at the same pace, neither the electric-power station nor the strip mine will be introduced on time.

What is the cause of such a big lag? Tens of ministries and agencies are engaged in building the complex's facilities and preparing the equipment for it. There is still not the required mutual understanding and support in their actions. Contractual commitments frequently are violated. There is no control organ to "direct the orchestra." What this leads to can be traced in the example of the forming of the builders' collective. This question is most painful. In particular, the pace is low because there are not enough people at the facilities.

N. Andreychenko, chief engineer of KATEKuglestroy, spreads out on the table a schematic map of the coal-mine workers' settlement. It had been proposed that 60,000 square meters of housing and facilities for cultural and personal-services purposes would be built by the start of this year. Only one-third of the housing has been introduced, and there are blank spots where the club, school and dining hall should be.

"Our misfortune comes from this," Andreychenko explains. "Not enough of the settlement has been built, so there are no workers."

"And why is the settlement underdeveloped?"

"Again, it is because there are not enough people."

The circle is complete: there are few people, so there is no housing, but housing has not been built because there are few people.

Indeed, this decision was made: there will be no temporary buildings of any kind at the complex. KATEKenergostroy [Trust for the Construction of Power-Engineering Facilities at the Kansk-Achinsk Power-Engineering Complex] was to have introduced here a modern demonstration city for 250,000 residents. There would be enough space for everyone. Relying on this, Minugleprom [Ministry of Coal Industry] transferred 26 million rubles to Minenergo [Ministry of Power and Electrification], which had been confirmed as the prime contractor for building up the city. And the coal workers received the right to obtain 80,000 square meters of good-quality housing with conveniences in 1980-1981. They have not received one square meter yet.

Perhaps the power-engineering workers have held back all the shared housing for themselves and are now living in luxury?

"No," said V. Popkov, director of Berezovskaya GRES-1, which is under construction. "We ourselves are thinking about putting up a temporary settlement. Until there is a demonstration city here. Everything has gone in the worst way, since they boosted the production facilities but let housing construction lag. And we are starting to make a fuss about temporary buildings."

This is what happens when the contractual commitments of the two partners are not fulfilled and there is no interagency monitoring and controlling organ.

There is a way out of the difficult situation. The USSR Ministry of Power and Electrification has at its disposal in Siberia mobile organizations with many thousands of people. The work volume for some of them has been reduced recently. For example, last year Bratskgesstroy [Bratsk Administration for the Construction of Hydroelectric Power Stations] did 400 million rubles' worth of work. But this year the amount has been reduced to 320 million rubles' worth. The released forces should not be allowed to be dispersed, for they are needed at the Kansk-Achinsk complex. The Bratsk workers would be able to unravel successfully the tightest knot--to build housing. In Bratsk there is a large combine for building panels, and it could be the first to render solid help.

Another high-capacity construction organization--Taymyrenergostroy [Taymyr Special Administration for the Construction of Power-Engineering Facilities] is based in a northern district--in Noril'sk. It was engaged in building the Nadezhda Metallurgical Plant, the second phase of which was recently turned over for operation. The detachment, of multithousand strength, which has been tested for soundness by the severe North, is without a job, since the introduction of new facilities is not planned for Noril'sk. Having enormous experience in industrial construction and the erection of complicated industrial equipment, the northerners could advance the erection of the main facility--the electric-power station--at a rapid pace.

The idea of concentrating forces at the Kansk-Achinsk complex is not new. And it doesn't cause anyone to object. USSR Minenergo even adopted a decision on this matter. It is true, it concerned only Taymyrenergostroy. Moreover, this "truncated" decision is being fulfilled extremely slowly.

Another important question, for which it is necessary to unite the efforts of various agencies--is the creation of the equipment for the strip mine. The Krasnoyarsk Heavy Excavator Plant still has not gotten on its feet, but it is necessary right now to start assembling powerful rotary stripping and mining complexes.

The ministries of coal industry and heavy and transport machine building concluded an agreement on the delivery last year and this year of components and parts of a new stripping complex, with overburden spreaders and reloaders. However, shortly thereafter, Soyuzglavtsvetmetuglekomplekt [Main Administration for Outfitting Enterprises of Nonferrous Metallurgy and of the Coal Industry That Are Being Built or Rebuilt with Equipment, Instruments, Cable and Other Products] unilaterally broke off the agreement--Mintyazhmash [Ministry of Heavy and Transport Machine Building] enterprises refused the order since development of the design for the new machine still had not been completed.

Neither does everything go smoothly with the highly productive mining complex. Last year one and a half thousand tons of metal structure should have arrived at the Siberian construction project from the Zhdanov Heavy Machinebuilding Plant, but not one ton has arrived. And the Zhdanovites have refused to manufacture spreaders and arterial and mine-face conveyors at all. Obviously, both ministries should decide just who should take on this work.

Development of the rail net in the area of the new construction project is holding back the construction pace. Last year railroad spur lines should have come to the GRES, to the site for assembling the excavators, and also to the Itatskaya high-voltage substation. It was planned to lay additional track to the Sharypovo and Dubinino stations. Freight is being handled slowly here, and railroad cars remain idle for many days.

Minugleprom and Minenergo provided these operations with the design and budget-estimating papers and with funds on time. But Krasnoyarsktransstroy [Trust for the Construction of Transportation Facilities in Krasnoyarskiy Kray] contracted only for a third of the amount that the clients needed. The trust has its own difficulties--it does not have enough sleepers and rails. It does not need so many of them, but it needs them for sure. Mintransstroy [Ministry of Transport Construction] is in the position of refusing to help its subunit, which is working at a hot spot. Again, as we see, there is no mutual understanding among the ministries.

Sharypovo should become a large road junction. Much freight within the kray could be brought in right now by truck. Let's say that many thousands of tons of reinforced-concrete structure and room boxes for dormitories are being manufactured for the construction project at the neighboring city of Nazarovo. It would be faster, more convenient and cheaper to haul them by automotive transport, without loading up the railroad's spur track. But there is no good motor-vehicle route between the neighbors, and neither the power-engineering workers nor the coal workers have its construction entered in the registers of construction project titles. And to carry the matter further, the clients still cannot come to an agreement with RSFSR Minavtodor [Ministry of Construction and Operation of Roads].

There are also many other cases where bureaucratic disagreements hinder the business. It's a very long road to the confirmation of joint decisions and designs, and difficulties are created frequently in the distribution and redistribution of funds and in their centralization and manipulation. The All-Union Scientific-Research Institute for Systems Research has been occupied for a long time with problems of managing the complex. Here they acquainted me with a voluminous scientific report, which examined in detail a number of variants for managing KATEK. A good goal was set: amalgamate the sectorial and regional management levers, which today operate by themselves and often work against each other. Here, for example, is a variant of centralized cooperative control. It calls for the creation of an intersector industrial association, based upon cooperative origins and with the shared participation of ministries by an amalgamation of financing resources, capital, and ceilings on labor, construction-and-installing work capacity, and other resources. An administration is created within the association as a separate element that is simultaneously a collective organ of the client ministries. This is the highest level, with strategic and coordinating functions to "sit" in the capital.

In order to coordinate the actions of the different agencies directly at the complex, it is proposed to organize a joint board of the enterprises that are under construction, which would figure as the sole client and which would be subordinated to the board of the production-operations organizations. This whole new structure, it is considered at the institute, will not involve large expense or increase administrative staffs, since it would be made up of people from the existing system.

The scientific and technical councils of many Krasnoyarsk production institutions and institutes have studied attentively the proposals of the scientists and have in principle endorsed the scheme of creating an interindustry coordinating administration for the complex. However, they spoke up for a more authoritative and simpler higher element. The Krasnoyarskugol' [Krasnoyarsk Coal Production Administration], for example, considers that an interagency coordinating organ should possess adequate rights and be directly subordinate to the USSR Council of Ministers.

In brief, solution of the problem of administering the complex has been at the proposal stage for more than a year now. The time has come to move from talks to business. All this will help to solve successfully the tasks set by the 26th party congress for introducing the capacity of the Kansk-Achinsk fuel and power complex during this five-year plan. Such problems are being spotlighted through the prism of the "sunstone."

11409
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GENERAL

MINERAL RICHES OF KOMI ASSR NOT BEING OPENED UP FAST ENOUGH

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 9 May 81 p 2

[Article by I. Morozov, first secretary of the Komi CPSU Obkom (Syktyvkar): "The Arctic's Heat"]

[Text] Our rich northern district has counted off one more five-year period in its burgeoning development. Even we who live here notice sharply this precipitous movement forward, the rapid economic renewal. The Timano-Pechora regional production complex, which is being formed on the basis of the fuel and power resources discovered here, is growing and gathering strength. Among these resources are such effective forms of energy and industrial raw materials as petroleum, gas, condensate, the country's best coking coal, and shale.

We can say today with pride that the task that the party set, of beginning the establishment of a fuel and power complex in the Komi republic during the 10th Five-Year Plan, has been carried out successfully. Just 5 years ago the shores of the arctic Usa and Kolva rivers were entirely different. The barracks-type and railroad-car settlements of the pioneers, which were breaking the monotony of the taiga and forest tundra, were their main feature. Right now the young city of Usinsk is being raised up here. A large railroad bridge and oil and gas pipelines cross the water obstacle. The railroad has arrived here.

The large oilfields at the Usinsk and Vozey deposits were built in the arctic in a short time. Hundreds of kilometers of oil pipelines were laid, and cluster pump stations and power transmission lines were built. All this has enabled fuel recovery to be increased 7-fold here during the five-year plan. The republic's drillers have executed an exceptionally complicated technical and economic task. They drilled through more than 1½ million meters of rock during the five-year period. There are more than 500 deep development wells.

The conquest of the "virgin land of oil and gas" has become one more bright page in the annals of the friendship of our republic's peoples. For example, life's path brought drilling foreman Svyatoslav Melekhin from Belorussia, his colleague and competition rival Tengiz Andgunadze from Georgia, and oilfield worker Stepan Vokuyev, a representative of our Komi republic's indigenous working class, together in the severe land of Usinsk. All three were honored with high government awards for five-year plan results.

The republic's party organizations keeps all aspects of the forming of the complex at the center of its attention. But the main concern is the assignment and training of personnel. It is this work that has been solved basically successfully. Let's take, let's say, this example. The rapid assimilation of the Usinsk and Vozey and fulfillment of the plan for recovering oil depend directly upon the organization of well drilling. Minnefteprom [Ministry of Petroleum Industry], not stinting resources for it, equipped the drilling enterprises with everything necessary. But the business did not progress.

Tireless analysis indicated that the cause of the interruptions was associated with weak supervision of the activity. So then a decision was adopted to put communist B. Nikitin in the post of manager of the Usinsk Drilling Operations Trust. He met with the supervisors of the drilling operations administrations. As a result, during the concluding year of the five-year plan, the republic's drillers passed the half-million goal for hole penetration for the first time.

It is not easy to be the judge of such a great supervisor as V. Usik, chief of Usinskneft' [Usinsk Oil Recovery Administration]. At times they criticized him sharply for mistakes. But, combined with good intentions and trust, this criticism helped the communist grow into a mature, reliable manager. The North holds onto such people, as they say. We have many of them, and we keep them.

Natural gas and coal are the most important components of the complex's fuel resources. The republic is producing today 18 billion cubic meters of the "blue fuel" and more than 2 million tons of gas condensate. Work is being completed on the erection of the fourth strand of the Siyaniye Severa gas pipeline. In all, there are 5 underground arterials that pass through Komi ASSR territory. Each hour Vorkuta and Inta miners send a trainload of coal to the country's central regions. During the 10th Five-Year Plan the standard bearer of the republic's coal industry--the giant Vorgashorskaya Underground Coal Mine--got onto its feet. It is here that, for the first time for our environment, Communist P. Yermakov's section mined more than a million tons of coal from one mine face.

The complex's fuel and energy potential is quite impressive even today. The republic recovers each year about 40 million standard equivalent tons of hydrocarbon raw material and mines almost 30 million tons of process coal and steam coal. Not every large state can boast of such wealth. All this is bright testimony to the full success of the economic policy practiced by the party, which is aimed at the accelerated development of new regions.

And other industries were also to be developed just as intensively over the entire five-year plan. The forestry industry and wood chemicals took a major step forward. Indeed, only our republic is still a forestry-products surplus region today in the European portion of the country. A study of the district's other natural resources was conducted systematically, the successes being so substantial that the assimilation of the many useful minerals can have a significant effect on the statewide balance of the extraction thereof.

Primarily I have in mind ore riches. Much has already been said and written about the Yarega titanium deposit. To this can be added only the fact that the republic has at its disposal unique resources of these ores other than those at Yarega. There are enough reserves of them for many decades. The discovery of a large bauxite region on the Timan, relatively close to inhabited centers, is of practical importance. These deposits are accessible for excavation by inexpensive surface-mining methods, and the quality of the bauxite is no worse than that of bauxites that we are importing today from abroad. Exceptionally rich deposits of barite ores have been discovered in the republic, and copper and other useful minerals have been found.

The whole area of the republic and all its natural resources are being included in the current five-year plan in the sphere of intense and integrated development. It suffices to cite just one figure: in 5 years more than 7 billion rubles of capital investment are to be assimilated. How is such a difficult task to be solved better and more rapidly? We held a detailed discussion about this at a meeting of activists of the republic's party, when the 26th CPSU Congress decisions were discussed.

The tasks set before the oblast party organization are enormous. Oilfield workers should increase fuel recovery by one-third, coal workers are required to increase the chosen pace without actually introducing new coal-mining capacity. For this purpose, it is necessary to conquer the deeper horizons, and to learn how to get at those thin seams which, it must be confessed today, sometimes are left in the mines. Losses of liquid fuel and, especially, of casing-head gas are to be reduced. For only in Usinsk are the flares still burning up to 250 million cubic meters of casing-head gas per year.

We will not solve 11th Five-Year Plan tasks without the businesslike assistance of interested ministries and agencies. The lack of balance in the pace of development of the fuel industries and of the construction organizations of Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] has been especially disquieting for the oblast party organization. Here is a bright example of that. Vuktylstroy [Vuktyl Construction Trust] has been fulfilling its program from year to year. But Vuktyl's gas-recovery workers still have not been obtaining a large number of items for the integrated treatment of gas and for buildup of the well facilities that were called for by the plan, although the field has been in operation for more than 10 years. Severpromstroy [Trust for the Construction of Industries in the Northern Regions] is deeply in arrears for numerous water lines, booster-pump stations, cluster stations, and other oilfield structures. Indeed, it is asked, is the state interested in such eased-up programs?

From year to year Glavkomigazneftestroy [Main Administration for the Construction of Gas and Oil Industry Enterprises in the Komi ASSR] bring to the plan far less work than is required for fulfilling oil-recovery tasks. It is impossible to provide for the planned well-being of the builders by this method. In the assimilation of capital investment, the main administration is today at the 1975 level; its capacity has not risen since then. Yet the number of builders' machines and mechanisms grew by half during the Tenth Five-Year Plan.

A similar picture is observed also at enterprises subordinate to Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises], Minenergo [Ministry of Power and Electrification] and other agencies. And, in the literal sense of the word, Perm'dorstroy [Perm' Roadbuilding Trust] of USSR Mintransstroy [Ministry of Transport Construction] is chopping the branch off under the oilfield workers. The capacity of the trust's administration in Usinsk is so small that it threatens to disrupt all our efforts to assimilate new deposits. According to the plan, 45 kilometers of roads per year were to be turned over, but, as a matter of fact, in 5 years only 100 kilometers have been built. And this year it is planned to lay only 17 kilometers. At such a pace, the oilfield workers will not be able to get to new fields--Sandiveyskoye and Khar'yaginskoye--in 10 years. And indeed, hopes for increasing fuel recovery in the next few years are associated with them.

We are far from wanting to dump all the difficult problems "onto uncle." Many of them are being solved on the spot with the help of economic supervisors and party activists. Other discrepancies are being eliminated, thanks to the obkom's good contact with ministries and agencies. But RSFSR Ministry of Geology grasps this point with difficulty. Why doesn't deep exploratory drilling increase in a growing region with such importance to oil and gas recovery? Indeed, it is a fact that the 4th Oil Exploration Expedition, which has been working in the promising Usinsk region, has a drilling plan lower than last year's. For Ukhtaneftegazgeologiya [Ukhta Association for Oil and Gas Geology] as a whole, only by the end of the current five-year plan is it contemplated surpassing even insubstantially the 1980 task. As a result, the pace of growth of oil and gas reserves has been slowed considerably; for a long time this has not been in tune with the planned growth of recovery of this raw material.

The extent of equipping for deep drilling, especially for prospecting and exploration, is provoking worry. For this reason and also because of the poor testing of wells, the geologists have not been learning how to evaluate deep-lying promising horizons. Yet the scientists consider that new discoveries are associated precisely with great depths.

The establishment of huge regional economic complexes is a new task for our country. And we need not be surprised that in this case so many problems arise. One of them has been becoming increasingly urgent each year: how to improve management of the complexes? How this question should be answered still has not been worked out either theoretically, or, even more so, practically. Meanwhile, its correct solution will help in successful fulfillment of one of the important tasks set by the 26th CPSU Congress: provide for a more complete and economically valid combining of sectorial and regional management.

11409
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KOMSOMOL CALLS FOR YOUTH TO FILL PERSONNEL SHORTAGES AT URENGOY GAS FIELD

Moscow KOMSOMOL'SKAYA PRAVDA in Russian 7, 9 May 81

[Article by A. Gramolin (Novyy Urengoy, Tyumenskaya Oblast): "Urengoy's Hour"]

[7 May 81 p 2]

1. [Text] Billion after Billion

> "Consider the gas industry's most important task to be that of accomplishing the program to boost the development of gas recovery. Bring its volume up to 600-640 billion cubic meters in 1985. Create conditions for further accelerated development of the industry." (From "The Main Directions for Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990.")

Urengoy began with a unique experiment. Here is what the Salekhard newspaper KRASNOYE ZNAMYA wrote 15 years ago: "For the first time, under Arctic conditions, a geological exploration expedition has hauled a drilling derrick 41 meters high and weighing more than 20 tons in assembled condition a distance of 170 km." Even today, with modern cross-country equipment, it is not easy to undertake such an operation. Then the tower was dragged over Ob' Gulf ice and beyond, up the river to the drilling site, and they hauled it, overcoming numerous ups and downs, with ordinary DT-75's. The assembly of the drill rig, which became the discoverer of the giant Urengoy field, was completed in a fraction of the time estimated.

A gas gusher blew on 6 June 1966.

Then there were still tens of other exploratory holes and disputes about the field's outlines and its reserves.

And now Urengoy's hour had come.

In August of 1974 Tyumen'gazprom [Tyumen' Gas Industry Association] drillers undertook construction of Urengoy's first development well. Its penetration was entrusted to the brigade of a young foreman, Nikolay Tereshchenko. And on Vladimir Il'ich Lenin's birthday, in the spring of 1978, the first installation for the integrated treatment of gas yielded the first cubic meters of fuel....

What does Urengoy mean for the domestic economy? Speaking at the 26th CPSU Congress, L. I. Brezhnev said: "The fields of the West Siberian region are unique. The largest of them--Urengoy--is distinguished by such gigantic reserves that for many years it will be able to support both the country's needs and exports, including exports to capitalist countries. The recovery of West Siberia's gas and oil and the transport thereof to the country's European portion are to be made the most important elements of the power-engineering program of the 11th and also of the 12th five-year plans."

Thus was Urengoy's importance emphasized.

Ivan Spiridonovich Nikonenko was ready to talk about Urengoy for hours. He knew it thoroughly, perhaps as much so as he does his own biography. Incidentally, the biography of the USSR State Prize winner, chief of Urengoygazdobycha [Urengoy Gas Recovery Association], is linked firmly with the Tyumen' North. A decade of his life was spent at Medvezh'ye, the first high-capacity gas field in Siberia, and now here is Urengoy, which hums with its numerous pipes.

On the rectangular walls of Nikonenko's study is a multicolored map of the field. All the current major activity of Urengoy is seen on it. There are the gas field installations, the pipelines, the roads, the compressor stations, and the city blocks. And also on the map, as if the future had been thrown open, one can easily catch sight of tomorrow, the scale of which, even to a person accustomed to the Tyumen' scale of things, seems grandiose. In 10 years Urengoy will come up to the level of the recovery of 250 billion cubic meters of gas per year. To this must be added 10-15 million tons of high-quality oil, which is physically detected under the gas reservoirs. And the amount of construction work! I'm not talking about the ten steel "strands" of transcontinental pipeline that stretch out toward the country's industrial centers. In the tundra, the framework of a huge thermal electric-power station that will consume blue fuel on the spot is being erected, and the departments of gas-treatment plants will rise up.

"Last year we increased recovery by 25 billion cubic meters," says Nikonenko, "and 90 percent of this was obtained by intensifying the technology and using the reserves of the four operating installations for the integrated treatment of gas."

This is the very time to tell about the contribution of young specialists to the intensification of technology, and about the search for reserves. And it is not at all because this is something unusual. Simply, most Urengoy workers and engineers are of Komsomol age. And the gas field itself is an excellent springboard for youth's creativity. And the title "All-Union Shockwork Komsomol Construction Project" mandates search and daring. And so creative Komsomol-youth brigades are operating in each Urengoygazdobycha subunit. I will not tire the reader with the specific subjects on which the young rationalizers and inventors are working. I will remark: these developments touch literally on all stages of recovery and preparation of the gas for transport over the steel arterials.

"Unfortunately, the builders did not manage to prepare the fifth and sixth installations for startup in time," continues Ivan Spiridonovich. "And a disproportion has grown up between the pace of recovery and the capacity of the transporting artery. Two 'strands' of the Urengoy-Chelyabinsk trunk line are operating at only two-thirds of their potential load."

As is known, every construction project begins with roads.

And in the middle of the muddy tundra, they are of paramount importance. It is slightly more than 30 kilometers from the city to the fourth installation, but if a washout is encountered on the way it takes 2-3 hours. Washouts perhaps are the main scourge of Urengoy's roads. Swamp water and underground streams now and then wash away the sandy fill, and it's goodbye to the road for a day, or at times for 2 days. The "Urals" get stuck in the brown slurry and only the "trudyagi"--crawler-equipped prime movers--maintain contact with the oilfield. And where are the celebrated concrete strips that proved themselves excellently at Samotlor? There are almost no concrete roads at Urengoy. Two small Tyumen'dorstroy [Tyumen' Roadbuilding Trust] subunits are doing construction work, which clearly is not up to the local scale.

"This is our foremost misfortune--roads," began Dmitriy Sergeyevich Belega, manager of the prime contracting trust, Urengoygazpromstroy [Trust for the Construction of Gas Industry Enterprises at Urengoy]. "So many workhours have been sunk in the swamplands! Our second misfortune is an insufficiency of panels, metal structure, brick and cement. The directive about a 300-day reserve of materials for northerners is not being carried out."

The builders' problems are not exhausted by the problems of the Urengoy oilfield. The field is experiencing an energy famine. Although the Pangoda-Urengoy LEP-220 [220-volt power-transmission line] has been built, it is inactive: USSR Minenergo [Ministry of Power and Electrification] is not concerned about timely erection of the substations. And each installation provides itself with electricity independently: by means of diesels and solar installations, which cost a pretty penny; indeed, they are brought to the gas field by air....And on the agenda is the inauguration of drill rigs with electric drive. That is why they are awaiting here the LEP-500 from Surgut, they are waiting and hoping that the power-engineering builders of Nadymelektroset'stroy [Nadym Trust for the Construction of Electric-Power Grids] will keep its word.

The Urengoy field has no equal in the country. How to manage this out-of-the-ordinary activity, which spreads out over a good hundred square kilometers, with maximum rationality? How to connect together both the plans for construction and the plans for recovery into one bundle, how to compute materials resources with precision down to the last nail, and the financing of all operations to the last ruble, providing, in so doing, for the main thing--judicious exploitation of the field. The association's leading specialists are unanimous: it can't be done without the efficient use of computers. An ASU [automated control system] section has been organized in Urengoygazdobycha, the work is just developing, not as rapidly as one would like. Poor quality of the designs interferes. A council of young specialists of the association has taken over patronage of the design and introduction of this system. There's too much to do and not enough of the needed experience and knowledge. It is here that the young engineering and scientific thought that is concentrated in the NII's [scientific research institutes] and design institutes, in laboratories and student scientific centers would come in handy!

And now a few words about--cucumbers. About the most ordinary cucumbers, which are extraordinarily tasty in the winter, especially when it is -40 degrees outside. At the initiative of Sergey Pashina, chief of the first gas-field administration, hothouses have been built at each installation and are yielding a harvest. So they have vegetables here. Small piggeries are being established at the gas field. Thus the first steps have been taken to develop their own agricultural base. At a recent city party conference on accountability and for elections, the delegates supported a decision of the party gorkom and gorispolkom to approve the initiative of the gas-recovery workers and to work out jointly with all production subunits measures for developing subsidiary farms.

[9 May 81 p 2]

2. [Text] How to Make a City Grow

> "Pay paramount attention to improving the populace's supply of consumer goods, living conditions, medical services and working conditions, and to solving other pressing social problems. Improvement of the workers' living conditions is closely related to the solution of production tasks." (From "The Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990.")

The gas field has given life to the city. Certainly it is the youngest in the country--Novyy Urengoy soon will be a year old. Growth has not been great, but its fame is enormous. The first impression? The city does not know inactivity, even Sunday is a workday, because the gas field should operate without interruption. The city dresses simply--one dresses not to be fashionable--peajackets, sheepskin coats, boots--just to be comfortable and warm. There are young faces all around in the streets, and on the honor plaques also. The main sign? A forest of piles--even in the industrial zone, where various enterprises necessary to the city and to the oilfields are being built, and in the housing area, where the first Urengoy multistory housing is to be erected. But still the city is made of wood, made of logs, to be precise, greenish-blue, as if painted aquamarine, in imitation of the taiga's color.

Much has been done, of course, but everything is literally changing before one's eyes. Youths go away on vacation, and when they return they do not recognize familiar blocks: where there had been a vacant lot, brand-new spick-and-span housing greets fortunate new residents.

But chairman of the city ispolkom Alim Grigor'yevich Dybrin began the conversation with a different statistic.

"The city is good for weddings. However, we have twice as many divorces. And the marriages disintegrate basically for one reason: we cannot provide family apartments. The separation, which is forced to last for years, is of no help to a family. Moreover, the fact is that people come to us young, not hardened by life. Another factor. All our enterprises are experiencing personnel shortages. The gas-field workers alone are short thousands of people. There are no volunteers? Take a look at my mail. In a week 500-700 letters arrive: take me for work! And qualified specialists write, needed people, family men as a rule. And how do you answer them? As a minimum, the city needs three times as much housing as it has. Only every fifth child goes to kindergarten, and schools are on three shifts...."

On what should the tactics to build the city be based? Nikolay Ivanovich Dubina, second secretary of the Novyy Urengoy party gorkom, has a definite opinion on this account, having spent long years of work in the North:

"Novyy Urengoy, being a settlement, cannot escape the defects typical of other new settlements: every possible kind of 'temporary building' and disproportions. Our task is to get rid of them in the shortest possible time. Moreover, city status is necessary. The lag has been the consequence of a lopsided, I will not use a different word, approach to the building of the field's facilities. Many economic workers considered facilities for cultural and personal-amenity purposes second priority. What is the way out today? Forthright coordination of the efforts of all enterprises and organizations for a sharp increase in the construction of housing and social, cultural and personal-amenity facilities. Six Union ministries, primarily Mingazprom [Ministry of Gas Industry] and Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises], are responsible for the integrated buildup of the Urengoy field. This is a great force, if everyone works together, helping each other, and not uncoordinatedly, each following up only on his industry's advantage. The agencies have to undertake together the creation of their own construction-industry base. Without delay, the erection of a housing construction combine and a brick plant should begin, since the geologists confirm that good clay deposits are close by. Thanks to the help of the Leningraders, a trust was organized and the first nine-story building erected. Each year 50,000 square meters will be turned over to Urengoyers. But it is not proper to rely just on outside help."

How can one disagree with N.I. Dubina....Novyy Urengoy needs a construction-industry base today. As it turned out, Nizhnevartovsk, Surgut and Nadym needed one. Although even there, there were vehement opponents who considered, they said, that the great earth will provide everyone with everything necessary. Experience, however, forced the construction of both brick plants and DSK's [housing construction combines]. With a delay, it is true. And against a background of disproportions that increased year by year. Then why the delay also in Novyy Urengoy? Moreover, imagine what each brick brought here to the construction site costs the state in full-weight rubles, and that 40 percent of the reinforced concrete arrives in an unsuitable state because of numerous handlings.

But without a reliable support system for social and personal-amenity facilities, it is practically impossible to achieve an integrated buildup of the facilities of the country's richest gas field. As for work organization, economy, savings, and the introduction into production operations of everything that is new and progressive, this is a word for the energetic youth of Urengoy. And Komsomol members spoke convincingly about this at their first city conference.

The Komsomol gorkom is still renting two small rooms in a workers' dormitory. In the daytime the gorkom members schedule things by the hour, and even by the minute. And it is most difficult of all to find them here. "There's no reason for us to open up the office," says gorkom first secretary Vladimir Degtyar', smiling. He and his comrades are trying to introduce a Komsomol work style in keeping with the life that is lived in Urengoy--businesslike, dynamic and purposeful.

Of course the gorkom did not rise up on empty ground. All these years a joint committee of the Komsomol had operated in Novyy Urengoy, where the builders, gas-field workers and geologists convened for reporting. And the traditions which are being continued and which are developing today arose right at that time--sponsorship of young specialists in the program to build up the oilfield's facilities, surprise "searchlight" inspections that were precisely on target and, therefore, effective, friendship of the workers' brigades with schoolchildren, and Komsomol song festivals and sports competitions for the Urengoy prize....

More than 30 Komsomol youth collectives are toiling at the gas field and at city construction sites. Hundreds of young workers completed their personal five-year plan tasks ahead of time and stepped into the new five-year plan, enriched by the experience of those who have lived through Urengoy summers and winters, having learned to become foremen and acquiring maturity.

...It is the Optimists' Street. It happened that the warriors of that first shockwork detachment lived from the start on this city street, which is still being built. Petr Zemlyanko, and Tanya Slepukhov, and Mikhail Murtazin, and Vyacheslav Vakhrushev....All are best brigade leaders in Novyy Urengoy these days, they are its backbone, its support, its pride. Many of them now are settled down to married life and have received apartments with conveniences, but, as before, they consider themselves lads from the Optimists' Street.

Nadya Bendas, who knows a fourth of the city's residents--city library readers--lives there now. Grownups, young girls, young lads--are good friends of Nadya, because she is the "book lady," the library director. And the library itself, built at the initiative of the SMENA journal, is a favorite house for Urengoyers; it is always cordial and hospitable. And how nice that they do not close the window until late at night!

In completing the story about Urengoy, I am carrying out a request by the supervisors of certain large enterprises there. Urengoy needs work hands extremely badly. Although warriors of the All-Union Shockwork Detachment imeni 26th CPSU Congress poured into it recently, three trusts--Nadymelektroset'stroy (soon it will be rebased at Novyy Urengoy), Urengoygazpromstroy [Urengoy Trust for the Construction of Gas Industry Enterprises] and Urengoygazstroy [Urengoy Trust for the Construction of Gas Field Facilities] are ready to take volunteers. They need power linemen, high-iron erectors, mechanics for repairing construction and automotive equipment, workers of all construction specialties, especially finishing workers and truck-crane and tractor-crane operators. And what about housing? Those who receive a call will be provided with dormitories, either in the city itself or in rotating-duty type settlements at the gas field. If, after weighing all the pros and cons, you decide, if you are strong in health and in spirit, then write to Nadym and Novyy Urengoy, to the personnel sections and to the Komsomol organizations of these trusts. /Do not forget to send a medical certificate about suitability for work in the northern environment and an extract from your work book. [printed in boldface]/ Then wait for the call. For the one who is lucky enough--realize that there will be no tents, but you will have to endure every kind of difficulty. There will be some intensely cold weather....

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GENERAL

SPEEDIER URBAN CONSTRUCTION IN NOVYY URENGOY URGED

Moscow IZVESTIYA in Russian 3 Jun 81 p 2

[Article by V. Romanyuk (Novyy Urengoy, Tyumenskaya Oblast): "Problems in the Growth of Novyy Urengoy"]

[Text] IZVESTIYA acts as patron for West Siberian cities.

The arctic day is long and dazzling. Only when gray twilight descends on the white, silent tundra can the flares of the nearby gas-gathering installations be seen clearly on the horizon. A dotted line of them goes off to the north, beyond the Arctic Circle. It is here, amid bogs and swamps and innumerable lakes and streamlets, that nature hid inestimable treasures. Gas and condensate--this whole "puff pastry"--stretches out over a vast area, and the geologists still have not named a final figure for the reserves, and the drillers have not gone down to the maximum depths. But it is a fact that the Urengoy field, which has been explored and precisely defined, is among the most important stores of the blue fuel.

"I consider it necessary to single out rapid increase in the recovery of Siberian gas as a task of paramount economic and political importance," Comrade L. I. Brezhnev emphasized at the 26th CPSU Congress. "The fields of the West Siberian region are unique. The largest of them--Urengoy--is distinguished by such gigantic reserves that it can, for a period of many years, provide for both the country's internal requirements and exports, including exports to capitalist countries. The recovery of gas and oil in West Siberia and the transport thereof to the European portion of the country are to be made most important elements of the energy program of the 11th, and also of the 12th, five-year plans."

The first cubic meter of Urengoy field gas entered the trunk gas pipeline on 22 April 1978--on V. I. Lenin's birthday. In 3 years the first installation for the integrated treatment of gas had sent 48 billion cubic meters of the blue fuel to the national economy. And each of the gas-gathering installations now under construction will reach this level in less than a year. During the short hour and a half that we spent by the humming braided pipe and columns of the fourth installation, about 1 million cubic meters of gas had been fed into the arterial.

As with the other installations of the Urengoy field, this one had been designed at the start for 10 billion cubic meters of gas per year, but even before startup it had been redesigned--with an increase in the design level to 15 billion cubic meters. Here, by way of experiment, an original unit--a turbo-expander, in which gas will be cooled, thereby preventing warming up of the soil and increasing the gas pipeline's throughput capability, is being installed.

The collective of Urengoygazdobycha [Urengoy Gas Recovery Association] has been given the task of reaching the level of 250 billion cubic meters of gas per year during the 11th Five-Year Plan. In order to reach this goal, capacity must be augmented by 40-45 billion cubic meters per year.

Building up the field's facilities in the arctic tundra is an exceptionally complicated matter. The shortage of welding equipment and of transport and lifting equipment is especially severely taxing. Many bold technical solutions have been tested here. While the first gas-gathering installations were assembled piecemeal, as they say, now they are beginning to be furnished as large outfitted modules. Practically all the welding and fabricating processes have been transferred to Sibkomplektmontazh [Siberian Association for Supplying Completedly Outfitted Equipment] plants. The work that 300 welders used to do under incredibly difficult conditions over a period of 5-6 months now is done by 70 shop workers in 2 months.

Here, 30 kilometers from the Arctic Circle, is the clear, icy breath of the ocean. Work proceeds along the whole front--in the intershop area and during the laying of "smooth" gas pipelines. Major manpower and material resources have been thrown into the construction project and the equipment is adequate, but at times the hands of a "conductor" who would be able to manage the accumulated potential wisely is not being felt. The rhythm of the construction assembly line often is disturbed because the desires of Mingazprom contradict the potential of Minneftegazstroy. For example, it is planned to put the eighth integrated gas-treatment installation into operation in the fourth quarter of 1981, but no work is being conducted here at all yet. The plan for developing the field in 1981, beginning with the design, was reexamined several times; finally confirmed at the end of April, it is not completely correlated with the program for introducing facilities.

"Urengoy is supplying the country's entire growth in gas recovery," says the director of the Urengoygazdobycha production association, USSR State Prize winner Ivan Spiridonovich Nikonenko. "They hold us rigidly to the plan. This is correct, but something else must be considered: the field is just being assimilated, but the city of Novyy Urengoy is not even a year old and not all the personal-amenity questions have been solved. We were prevailed upon during the period of growth, when the enterprise was coming into being, but are living through a period of mighty growth, and additional advantages for the collective should be introduced. Planning should be flexible."

This question is not idle, the more so since it is not easy to keep personnel in the North. Among the causes are the lack of construction for personal amenities and a lag in support for the facilities for development of the Urengoy field.

A first encounter with the city is puzzling. Scattered in the shape of a fan on the steep ice-bound shore of the Yevo Yakha River are two-storied workers' dormitories of high quality but unimpressive in architectural appearance, small panel-type BAM [Baykal-Amur Mainline] houses, and temporary buildings. A bit farther, beyond the pioneers' settlement, are several five-story panel-type apartment houses, a brick school, a social center that is being finished in varicolored brick; and the silhouette of a microrayon that is being built up with nine-story apartment houses is visible. And, of course, there is the shoreless sea of a railroad-car city, with television antennas sticking out all over, and still further is "samostroy" housing (built by individuals) uncontrolled by anyone.

Municipal statistics support the cursory impression: more than a third of the inventory consists of mobile housing, and just as much housing in panel and brick variants (wooden houses make up only about 15 percent).

"The problems of development of Novyy Urengoy are, of course, bigger and more complicated than they were at Nadym," says First Secretary of the Novyy Urengoy Party Gorkom Yevgeniy Fedorivich Kozlov, who has been in charge of the Nadym party organization for many years. "But in a well-known sense it is easier here, because near at hand is the industrial base for young Siberian cities that have grown up in recent years and which have construction and gas-recovery workers. This is why the pace at Novyy Urengoy is three to four times as high. During the five-year plan, taking into account the development of the field and an annual growth in population of 10,000-12,000, it is planned that almost 1 million square meters of housing will be built!"

Novyy Urengoy is a city of six All-Union Komsomol shockwork construction projects. And as the borders of the field spread out, supplements to the original city master plan were introduced. It nevertheless was cracking at the seams, and the designers had to reorganize while in motion. And let's concur that the builders had neither the time nor the resources to put into glass and stone the best thoughts of the designers. However, it is difficult to get rid of a feeling of annoyance when you pass squat, worn buildings of the most capricious architectural solutions.

The general designer, the Leningrad Zonal Institute of Experimental Design (LenZNIIEP), is in arrears to Novyy Urengoy. In March a conference of representatives was held in Novyy Urengoy with the participation of Gosgrazhdanstroy [State Committee for Public-Building Construction and Architecture] and it was proposed that the institute provide by 1 April for the issuance of tasks, conclude a contract with the subcontracting design organizations, and, in particular, develop during April a scheme for building up the engineering facilities for the southern portion of the city, with a view to promoting preparation for 1982 construction work. This was not done by the deadline. The institute coordinates poorly the work of the design organizations that it has under contract, and there are less than 10 of them. Given the current pace and volume of design, the city must have an integrated working group, but there is not even continuing designers' surveillance here.

Novyy Urengoy workers recently came out with a good initiative: to build 205,000 square meters of housing in 1981, exceeding the plan figure by 76,000 square meters, and to introduce a large number of facilities for social and personal-amenity purposes. However, this initiative was not supported by engineering preparation work, and even now there is no amended city master plan. Many facilities stand for months awaiting the hookup of sewers, electricity and water supply.

In order to promote the construction of Novyy Urengoy over a broad front, engineering preparation for the northern part of the city (utilities networks and pipelines and service lines) is necessary right now. Brick is in short supply in the North, and the designers do not always consider this. It costs about a ruble to deliver a brick to Novyy Urengoy; because of the large number of handlings prior to arrival at the site, 80 percent of the bricks are broken. Last year the builders could not introduce 2 kindergartens for 280 children each. In the North the labor intensiveness of construction of a brick kindergarten exceeds 3-fold to 4-fold that of building panel housing, and this means that these facilities must be built in the panel version.

No few critical shots have been fired over the fact that in the growing cities of the oil and gas-bearing district, thousands of facilities are introduced under unimproved designs that were worked out for the central zone of Russia. Such cases have been encountered in Novyy Urengoy.

Leningrad builders are to erect an entire street of nine-story buildings--it has already been named Leningradskaya. But people in Novyy Urengoy are not enraptured about this housing series; it has been obsolete for a long time, although it was hastily reworked for northern conditions. According to the logic of things, the Leningraders should also build facilities for cultural and personal-amenity purposes in "their own" microrayon. But the question has been under debate for many months.

If we are to speak seriously about realistic assistance to West Siberia, we should talk about mastering designs in the northern version. Indeed, Muscovites are building houses of the newest series in Nizhnevartovsk. Of course, other housing builders should send also to Novyy Urengoy modern-series housing, soundly adapted to the conditions of the North, and be concerned about the integrated build-up of new areas.

The wooden construction is not pleasing to the eye. Moreover, at times up to a year passes during the assembly of a house made of squared beams. The squared-beam construction method clearly is not acceptable for the North's conditions, but about 50,000 square meters of this housing per year comes to Novyy Urengoy. We spoke about this with Pavel Alekseyevich Baryayev, commander of the Komsomol Shockwork Detachment imeni 18 s"yezda VLKSM and a deputy of the USSR Supreme Soviet.

P. Baryayev posed the problem of the construction project at a session of the USSR Supreme Soviet. The official answers came: Mintransstroy [Ministry of Transport Construction] has reported that, in order to accelerate the construction of approach lines, two sleeper-impregnating plants should be assigned, and Minneftegazstroy has taken some steps to improve outfitting of the city's construction projects with materials. But not all the urgent questions are being solved responsively

Novyy Urengoy is faced with exceptionally complicated transportation conditions; it is the only one of the large North Tyumen' cities that does not have water arteries. Structure and parts for the panel housing and facilities that are being erected for cultural and personal-amenity purposes are being delivered during the brief navigation seasons on the Pur and Nadym rivers and are transported over a winter road. But a part of the freight sits on the docks for a long time. Vehicles break down mercilessly on the broken-up roads. Yet the requirement for freight transport grows steadily. Last year about a million tons of freight arrived at the docks on the Pur and Nadym rivers, a major part of it for the needs of the growing city; this year 1.5 million tons will be received, and later the amount will grow to 2.5-3 million tons.

The low-capability organizations that Mintransstroy sends to Novyy Urengoy can put into operation, at best, 20 kilometers of the 50 or more kilometers of road planned for introduction in 1981. A shortage of road slab is being felt on the route. The navigation season on the Nadym River has been open since 20 June, on the Pur since 10 July. However, neither in Tobol'sk to the south, nor at Labytnangi in the west of the oblast, where freight is piled up during the navigation season, are there practically any road slabs, although no less than 35,000 of them are required for this year's program.

Novyy Urengoy needs its own construction industry, especially a large-panel housing construction plant. To bring parts here over more than 200 kilometers from Nadym, not to speak of Leningrad, is extremely unsuitable. While wooden housing costs 350 rubles per square meter, Nadym-series housing costs 515, Leningrad-series housing 997 rubles. There is not even a concrete-and-mortar center in the city, so ready-mix concrete has to be prepared directly at the construction sites. Capacity for making fully assembled reinforced-concrete articles (lintels, purlins and so on) is lacking. A sawmill department that can process 10,000 cubic meters of the timber that is received per year is needed.

But still, amid the unsolved problems and the work that has not been done, there is also no little joyful news in Novyy Urengoy. A remarkable event of recent days was, for example, the opening of a department store. In building it, a simple and original decision was adopted: two hangars that were intended for storage premises were joined together, a part of the reinforced-concrete structure was replaced by glass, and the interior was adorned by neon luminaires and mosaic tile. The city's shopping space was doubled at one stroke with the introduction of this facility, the largest of its kind in the Tyumen' North.

Another remarkable event was the publication of the first issue of the city newspaper, PRAVDA SEVERA. First Secretary of the Novyy Urengoy Party Gorkom Ye. Kozlov told me that the entire gorkom waited for the publication of this issue on 31 December, until half an hour before midnight, and then each one of them, including the first secretary, delivered papers to the doorways of their homes.

The city is not at present being adequately supplied with vegetables. But a foodstuffs program for Novyy Urengoy has been worked out, and it is being executed energetically. As for subsidiary-farm facilities, it is planned to introduce into operation this year a swinery for 1,500 head, a poultry factory for 10,000-15,000 laying hens, and 8,000 square meters of hothouses. I was brought to see some small hothouses directly at the integrated gas-treatment installations. These were initiatives of the gas-field workers. Last winter the hothouse of the first installation regularly yielded cucumbers, green onions, and flowers. This year it is planned to introduce four such hothouses. The severe northern nature, after the freezes and blizzards of winter, is favored with an amazing summer, with mushrooms and berries, and almost 24 hours of daylight. It is planned to establish a recreation center on the Pur River.

I recall a session of the ispolkom of the city soviet that I managed to attend. About a score of questions were discussed, among them preparation of the schools for the new school year, the conduct of sanitary cleaning of the city, an integrated plan for protecting the population from blood-sucking flies, the issuance of orders for housing space, and, finally, the naming of Novyy Urengoy's streets. Incidentally, it was decided to retain the name of the very first street--Optimists' Street.

"The question, 'Do we undertake strenuous plans?' has never existed for us," said Yevgeniy Fedorovich Kozlov, in saying farewell. "We strive to achieve the maximum. There are complexities with the complete outfitting of Nadym-series panel-type housing: the large-panel housing construction plant is across the river and until the water surface is cleared, we will bring structure from shore to shore by helicopter. And so it is with any question--we take an aggressive position, to be able to achieve more than is permitted by ordinary calculations."

The 26th party congress posed the requirement to economic workers with precision: no production successes of any kind can shield deficiencies in providing people with the amenities. And so it is precisely that the construction of housing tracts for Novyy Urengoy should not lag behind the pace of growth of recovery of the blue fuel. People go to the North not just for the sake of romanticism or for greater earnings. They go to build their fate, to create. They cannot take warm apartments and theaters, gymnasiums and libraries with them. All this should be in the North. The joy of creative labor unfailingly should be augmented by well-built amenities.

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GENERAL

SOUTH YAKUTIA PRODUCTION COMPLEX GRADUALLY TAKING SHAPE

Moscow STROITEL'NAYA GAZETA in Russian 3 Apr 81 p 2

[Article by A. Prigodich: "The South Yakutia TPK [Regional Production Complex]: Problems and Prospects"]

> [Text] "Continue to form the South Yakutia Regional Production Complex and complete construction of the coal strip mine and the preparation plant and the first phase of the Neryungrinskaya GRES." (From "The Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990."]

It is planned to obtain basic output from the South Yakutia complex--coking concentrate--in 1983. For this purpose Yakutuglestroy [Yakutsk Coal Industry Construction Combine] should put into operation the country's largest preparation plant. But they are mining coal here for the second year now. Each day two or three trainloads are sent from here over the new Berkakit-Tynda railroad line and beyond, over the Trans-Siberian Railroad. While last year about 2 million tons were mined at the coal strip mine, 13 million tons of coal per year are to be mined here later.

It became easier by far for the builders after the introduction of the track from Berkakit to the Ugol'naya Railroad Yard in September last year. The laying of the Little BAM [Baykal-Amur Mainline] enabled dozens of trucks to be released. The power line from Tynda to the site of the Neryungrinskaya GRES, which was turned over for operation then, has been a reliable power supply for the TPK construction project. Construction industry capacity has increased considerably: the first phase of the plant for large-panel housing construction is operating in unison with the ready-mix concrete and mortar department and other facilities of the production base. Already today locally produced parts for some large-panel housing are being received in Neryungri--a city that will have 100,000 residents in the not-so-distant future.

A. Samankov, Deputy Chief for Economic Affairs of Yakutuglestroy, places high hopes on acceleration of the pace of construction since conversion to settling with the client for construction commodity output began here. True, this work is still going on slowly. During preparation of the plan for 1981 the board for construction of the coal complex had not identified the operating subcomplexes that the contractor would be able to present to the commission's workers pending completion of work on the facility.

Another prime contractor--a special administration of Bratskgesstroy [Trust for Construction of the Bratsk GES] of USSR Minenergo [Ministry of Power and Electrification], which is erecting a GRES and the Sosnovyy Bor settlement for the operators, is building up his forces at the South Yakutia TPK. In brief, completion of construction of the coal strip mine, the preparation plant and the first phase of the power station on time does not provoke major misgivings. And now it is necessary to think about the problems of the TPK that are associated with the more distant future.

First of all, about what the builders' and installers' collectives will do in this region after completion of the facilities that are currently being built with such great difficulty. Obviously, it is necessary not to put tomorrow aside but to begin to prepare for construction of the underground coal mines.

Further, is there sense in exporting all of Neryungri's coal and concentrate so coke may be obtained therefrom outside the TPK? Would it not be desirable to produce coke locally and use it here? For close by, about 30 kilometers from Neryungri, large iron-ore deposits have been discovered: the Tayezhnoye, Pionerskoye and Sivaglinskoye deposits. Specialists consider that it is time to determine finally a place for preparing a site for a metallurgical plant, for the right to build which Yakutia and neighboring Amurskaya and Irkutskaya oblasts have been contending for many years.

Deposits of mica and other useful minerals have been discovered in South Yakutia, which is also rich in timber. In brief, many ministries can participate simultaneously in forming the TPK. An integrated approach to assimilation of the rich region would promote higher quality in the predesign study for construction. And indeed, precisely because of the absence of an integrated approach for facilities for the coal complex, capital investment thereat has increased 5-fold over the originally established amount. The South Yakutia TPK should have a clear outlook for at least two five-year plans ahead.

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CSO: 18[illegible]/184

GENERAL

TECHNIQUES FOR BUILDING UP TYUMEN' OILFIELD FACILITIES TOLD

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Apr 81 p 2

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[Text] The 10th Five-Year Plan: achievements, experience and lessons.

The first gas treatment plant in the Middle Ob' region was built in 4 years, but for the fourth time in a row a plant with the same capacity has been erected in 11 months. How was it possible to achieve a 4.5-fold reduction in time?

Only through growth in labor productivity and advanced technology. The first GPZ [gas treatment plant] was built by traditional methods, while erection of the later plants made increasingly wide use of industrialized methods, particularly the erection of large modules and components of factory manufacture.

The main administration built the country's first modular oil transfer-pump station at Kuma back in 1968. Since then the completely outfitted module method of construction has won wide recognition. But the engineers and economists of the main administration are also searching for industrialized construction methods in other fields. During the five-year plan, after start of the wide promotion of oil and gas construction, the amounts of work done by industrialized methods increased 20-fold.

During the last five-year plan, about 4,000 people were released for other work through the introduction of the new construction methods. Because of this we were able to increase the amount of contracting operations 1½-fold. Such a great shift enabled the improvement also of other indicators: profitability and work quality. The average score for quality of facilities turned over rose from 4.01 in 1975 to 4.32 in 1980. This experience sets the main administration's strategy also for the long term in fulfilling five-year plan tasks.

During the construction of oil and gas facilities, the most labor-intensive job is erection of the utility and service lines and pump and compressor stations in muddy swamps. The amount of earthmoving work, if done by traditional methods, would be enormous. Tens of thousands of cubic meters of soil, thousands of saddles and many kilometers of insulation for heating lines....All these are exorbitant expenditures of manual labor. That's how it was previously.

We adopted a decision to convert completely to industrialized technology for erecting utility and service networks. An original technology for hydrophobic keramzit-asphalt insulation for pipes for laying conduitfree heating grids was developed in the industry for the first time. A department for the production of such pipe was built at Bogandinka. After that a similar mechanized department appeared in Surgut.

During the 10th Five-Year Plan heating grids were built at Glavtyumenneftegazstroy facilities only by the conduitfree method. Thanks to this, labor productivity increased 8-fold to 10-fold. For each kilometer of pipe with hydrophobic insulation, we saved 294 cubic meters of reinforced-concrete structure. And the main administration has now constructed more than 1,700 kilometers of this conduitfree grid. For developing and introducing the hydrophobic insulation technology, a collective of inventors was awarded a USSR Council of Ministers bonus.

Although the proportion of earthmoving work in total labor expenditure at our construction projects has been reduced from 75 to 45 percent, it nevertheless remains substantial. This has held back the pace of introduction of facilities. Then the idea of bringing all service lines to the surface was expressed. Many perceived this as a travesty on common sense. A pipe on the surface in minus 50-degree temperatures!

But this time, in addition to the hydrophobic insulation that had been mastered, we decided to use a thermal companion with a warming cable. A companion pipe of smaller cross-section, with a cable inside that gives off heat, was welded to the main pipe. An experimental water-carrying fire line built in a surface version has been operating flawlessly at Samotlor for 4 years. Now we are expanding this industrialized technology for laying utility lines to the Kholmogorskoye oil field and the Urengoy gas field.

Another large reserve for raising labor productivity is the use of nontraditional footings and foundations. The first facilities at the Tyumen' oilfields had footings based on monolithic reinforced concrete. Even then we had been convinced that monolithic concrete was not suitable for our conditions because of the enormous unnecessary labor expenditures. We decided to build on piles. But how does a pile behave in a peat bog of multimeter thickness?

Personnel of Giprotyumenneftegaz [State Institute for the Design of Oil and Gas Industry Enterprises in Tyumenskaya Oblast] and Yuzhniigiprogaz [Southern Scientific-Research Institute for the Design of Gas Industry Facilities], in collaboration with our contracting organizations, developed methods for building oil and gas facilities on pile footings. We drove 10,500 piles in 1968, 160,000 in 1980, that is, we erected about 90 percent of the industrial and public buildings by this progressive method.

In recent years we have also begun to use piles in frozen soils. The technology was simplified to the maximum: peat removal and water drainage was reduced, earthmoving work was cut to zero, and seasonality in the erection of tanks for oil was eliminated. The time required for building tanks of up to 50,000 cubic meters in capacity was reduced 2-fold to 2.8-fold. The oilfield workers received still another winning--the dangerous subsidence of large tanks that had been observed with monolithic foundations was completely eliminated. The method was approved by USSR Gosstroy and is now being used in other regions.

During the 10th Five-Year Plan the builders undertook to build the facilities of new fields 200-400 kilometers from support bases and roads. The difficulty was not only in the fact that we were developing large-scale industrialized construction in remote places. The local soils--swamp and peat land--freeze only to 0.1 meter, despite minus 10-degree temperatures. Heavy equipment can operate here only a few months of the year.

How to carry out specific tasks for growth in oil and gas capacity under worsening conditions? Double or triple the manpower of the collectives? Double the pool of machines and mechanisms? These possibilities were excluded. Back in 1975 Glavtyumenneftegazstroy created a commission to develop engineering tactics for building up the new fields. After generalizing past successes and errors, the commission defined the basic principles. The main one was this: preparation of the site for construction should precede the arrival of the main forces at the facility by a year to half a year.

Why did they attribute such significance to this? The fact is that the amounts of construction and installing work of the main administration during the 10th Five-Year Plan rose 141 percent, but site preparation work for construction grew 4-fold. In our circumstances, site preparation means placing a 1½-meter layer of sand on it; this is cheaper than continuously removing the peat. But how to get millions of cubic meters of sand? The only solution, according to past experience, was hydraulic fill close to the construction site.

Deposits of sand were explored--more often than not at the bottoms of rivers and lakes. In the summer they washed the sand into heaps, and then it was delivered over winter roads. It is true, sand could not be found within a radius of hundreds of kilometers from some construction sites, but still a way out was found. In accordance with a recommendation of our Siborggazstroy [Siberian State Institute for the Introduction of Advanced Operating Techniques and Work Methods in the Construction of Gas Industry Enterprises] agency, the air-lift pump method of raising sand from a depth of 30-80 meters was used; this method was first applied in the shale industry. Right now this method is being mastered by Nefteyuganskspetsgidromekhanizatsiya [Special Trust for the Mechanization of Hydraulic-Engineering Methods at Nefteyugansk], which prepared tens of sites, including sites at the Pakachevskoye and Severovar'yegansk fields. The economic benefit of the engineering tactic chosen for building up the facilities was tens of millions of rubles.

We coped with the special five-year plan tasks. Ten gas fields with a total capacity of 100 billion cubic meters were built on formerly uninhabited land, and installations for treating 124 million tons of oil were introduced. During the five-year plan the main administration introduced more than 5,000 inventions and rationalizers' suggestions, receiving 28.7 million rubles in savings.

A search for ways to reduce labor costs, a schedule for the industrialization of operations, and justifiable engineering risk--these are the rules of our everyday daily work. The risk is explained not only by the special disposition of the type of people who work here, but mainly by the objective conditions for mastering the Tyumen' fields.

One should not, citing the growth in construction and installing work volume as justification, send all the tens of thousands of new construction workers into the taiga and tundra. In the first place, the build-up of the field for one man costs about 20,000 rubles--live labor is expensive in the North. Moreover, not all the reserves for reducing labor expenditures have been brought to bear. For example, the level of use of modules at our facilities still does not exceed 37 percent, and it could be much higher if the machinebuilders would produce oilfield equipment that is compact, of smaller dimensions.

But, even without touching on the allied industries, we see that our own reserves are being used far from completely. For example, the main administration's specialists, jointly with design institutes, long ago developed and introduced metal grillage frameworks for compressor-station units instead of reinforced-concrete monolithic units. They reduce labor expenditures to one-fifth, work time to one-fourth. The quality is even better than that of reinforced concrete.

However, we still make metal grillages in our workshops, but it would be simpler and more economical to ship the pumps and compressors unitized on a common grillage framework. This does not take into consideration the fact that metal is half as costly as reinforced concrete is at places far from communications routes.

I do not dispute it--metal must be saved. But indeed, isn't national economic benefit the main criterion? A reduction of 1 month in construction time for one compressor station will enable the country to receive an additional 150-200 million cubic meters of gas. Therefore, the demand for a current saving, to which clients often resort, provokes surprise. Each time, lengthy coordination has to be performed to replace reinforced-concrete fireproof tanks with metal tanks, although everyone knows that their labor intensiveness is half as great, and the weight is 6-fold to 8-fold less. In the final analysis, they are more economical.

We have been maintaining good businesslike relationships with Giprotyumenneftegaz, the leading design institute. Its decisions are always weighed, they are based upon a knowledge of the specifics, and they are bold. But by virtue of the great workload of the general designer, the preparation of designs is often entrusted to other institutes, and we are surprised again by the solutions that they incorporate in the designs: they are so outdated.

Under the new five-year plan Glavtyumenneftegazstroy must raise labor productivity by 22.9 percent. We formerly intended to take the Tyumen' treasure not by numerical superiority but with skill. The measure of our efforts, as well as those of our subcontractors, clients, designers and suppliers, should be not the letter of obsolete directives but the real economic benefit of each engineering decision.

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BRIEFS

MULTILAYER GAS PIPELINE PLANT--Gor'kovskaya Oblast.--A huge electric pipe-welding department intended for producing multilayered gas pipe is being established at the Vyksa Metallurgical Plant. The new department stands out with its enormous dimensions. The length of each of the four bays is about a kilometer. Total space for the department exceeds 200,000 square meters. When the design capacity is assimilated here, a million tons of pipe will be produced per year. This year the first phase should go into operation. Experience in laying gas pipeline has indicated that further increase in the pipe diameter is irrational. The more effective way to increase throughput of the underground line is: a rise in the pressure of the gas being moved. For this purpose, the production of especially strong multiple-layer pipe, which is designed for pressures of up to 120 atmospheres, is being established. Coordination of the activity of all participants of the construction project: the prime contractor--Metallurgstroy [Trust for the Construction of Metallurgical Enterprises]--and its numerous subcontractors, is helping in the successful progress of construction of the new department. Many supplier plants are actively helping the business. The collective of the Komsomol Youth brigade that bold organizer Ye. Markov supervises has come out with a valuable initiative. The builders have committed themselves to turn over all footings for the industrial equipment upon first presentation and to keep its word firmly. This beginning has also found enthusiastic support in other collectives. The future operators must help the builders. This is very important: during the installing process the operators and equipment set-up personnel of the new department can, with their own hands, feel each component, which, as a result, will help successfully in assimilating the production of the multiple-layered pipe. [By A. Yershov] [Text] [Moscow IZVESTIYA in Russian 30 May 81 p 1] 11409

NEW MINERAL PRICES--With a view to establishing a single procedure for preparing plans for prices for useful minerals at new deposits in accordance with the Temporary Standard Practices for Economic Evaluation of Deposits of Useful Minerals, which GKNT [State Committee for Science and Technology] and Goskomtsen [State Committee for Prices] of the USSR approved on 28 November 1979 (Nos 556/737), USSR Goskomtsen adopted a decision which is guided, in this case, by wholesale prices that are being introduced beginning 1 January 1982, and, in special cases, when the level of these prices is inadequate, when the necessity for the assimilation of new deposits is called for by long-range plans--by fixed expenditures for useful minerals for economic evaluation of the deposits. In order to provide for a correlation of the wholesale prices for the useful minerals of new deposits that are not included in the existing pricing zones and regions with the level of wholesale prices that are being introduced beginning 1 January 1982, it is established that deviations from this level are permitted only because of differences in quality and distance of hauling of the useful minerals, which are validated by the master scheme for developing the branch of industry, also taking the transport possibilities into account. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 16, Apr 81 p 9] 11409

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